SD421.37
.W64
1962

cp 3.137

WILDLAND

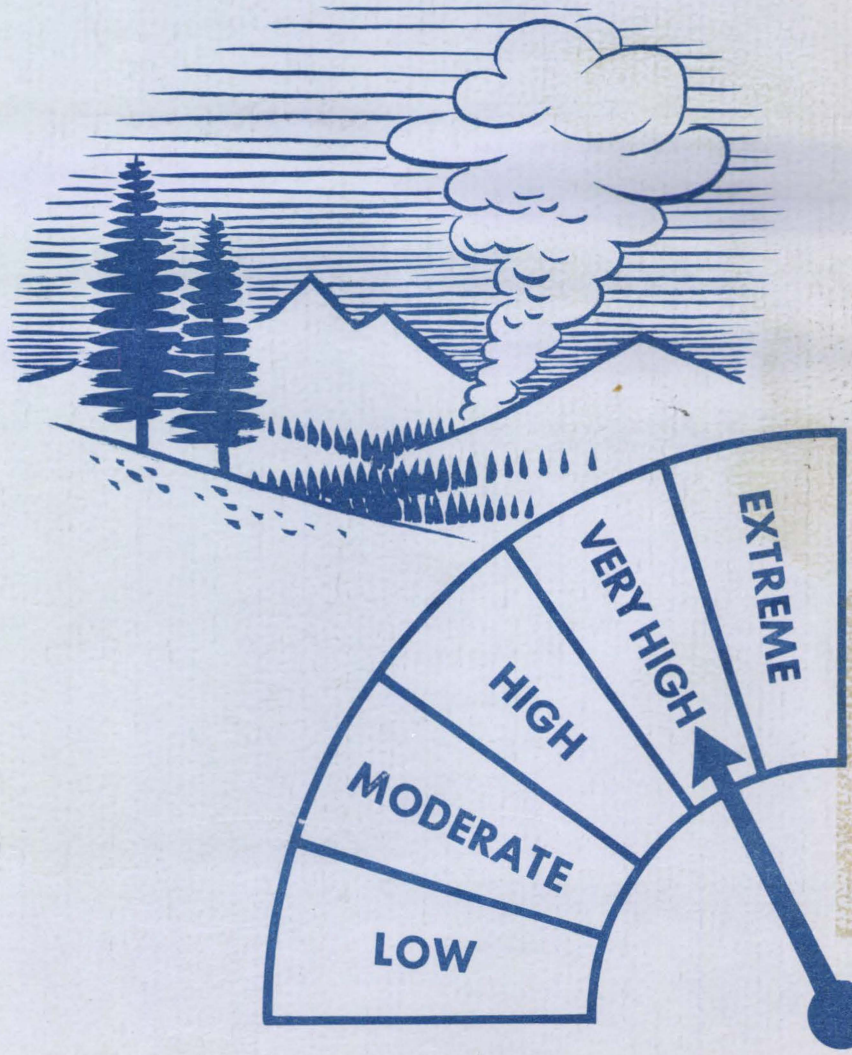
FIRE DANGER RATING

FOREST SERVICE
INTERMOUNTAIN
RECEIVED
MAY 18 1962
NORTHERN FOREST
FIRE LABORATORY

FILE COPY

RETURN TO
N F F L LIBRARY

Act		Info
	Barrows	
	Carver	
	Sperry	
	Hardy	
	Hitsch	
	Everard	
	Brackebusch	
	Mutch	
	Barney	
	Fuquay	
	Baughman	
	O'Dell	
	Taylor	
	Kaehn	
	Anderson	
	Rothermel	
	Bieuer	
	Yorton	



Forest,
County or
Park _____

District _____

FIRE WEATHER STATION INFORMATION

for

_____
(Station name)

Station number __ __ __ __

Station elevation _____ feet, coded as __ __ __

Section _____ Township _____ Range _____

Latitude _____ Longitude _____

FDR area number(s) _____ _____

Fuel types rated for Burning Index _____ _____ _____

Fuel type rated for Fire Load Index _____

Relative humidity table _____ to _____ feet, _____ inches

Make of anemometer _____, serviced _____

Type of wind recorder _____, serial number _____

Type of wind counter conversion table _____

Station use code:

_____ 1. Compute Fire Danger Indexes (Form 173)

_____ 2. Compute pre-season Timber Buildup (Form 173)

_____ 3. Determine condition of vegetation and compute Area Average Danger Indexes (Forms 183, 193)

_____ 4. Weather Bureau cooperating station (WB Form 612-17, formerly 1009E)

_____ 5. Yearlong station (Form 173)

Forward copies of Fire Danger Records as follows:

Form 173 _____

_____

Form 193 _____

_____

WILDLAND FIRE DANGER RATING

Part I

SYSTEM INSTRUCTIONS

Part II

AGENCY INSTRUCTIONS

Part III

AGENCY SUBDIVISION INSTRUCTIONS

Part IV

U. S. WEATHER BUREAU
FIRE WEATHER FORECAST SERVICES

The Wildland Fire Danger Rating System was developed through the cooperative efforts of The California Division of Forestry, the U. S. Weather Bureau, Region 5 of the U. S. Forest Service, and the Pacific Southwest Forest and Range Experiment Station of the U. S. Forest Service.

Prepared by

Pacific Southwest Forest and Range Experiment Station
Forest Service - U. S. Department of Agriculture
Berkeley, California

Issued 1962

The Wildland Fire Danger Rating System

The Wildland Fire Danger Rating system is designed to estimate the relative effects of weather on the several aspects of fire behavior--fire spread, fire intensity, and fire ignition. The effects on spread and intensity are combined to form the Burning Index on a scale of 0 to 100, which is then a relative measure of the job load per fire. The Ignition Index, also on a scale of 0 to 100, indicates the effects of weather on fuel ignitability and is a relative measure of fire probability. Combining the Burning Index and the Ignition Index into a Fire Load Index, again on a 0 to 100 scale, produces a relative measure of the potential job load per day. Accumulating the daily Fire Load Indexes for any one area results in a measure of the total job load for the season, or portion thereof, for that area. This is called the Fire Weather Severity.

The principal features of the operation of the Wildland Fire Danger Rating system in California are these:

The State has been divided into Fire Danger Rating Areas which serve as the units of land area on which weather is measured and Indexes computed and applied. Insofar as practical, each area represents a distinct climatic type.

Each Rating Area is further classified according to the fuel type that predominates in the principal risk zones. These are designated as: Grass, Brush, and Timber.

Within each Rating Area designated Fire Weather Stations make daily measurements of weather and fuel elements and compute the Indexes from tables.

The Indexes from the Fire Weather Stations in each Rating Area are averaged to obtain a daily Burning Index, Ignition Index, and Fire Load Index for the entire Rating Area.

Finally, a uniform system of daily practices is prescribed that provides for:

OBSERVATION at each Fire Weather Station of fire weather and other factors that determine forest flammability.

COMPUTATION of the Indexes from these observations.

COMPILATION at a compiling center of station Indexes into average Indexes for the Rating Area.

PREDICTION of tomorrow's Indexes from the plotted trends, weather forecasts, and other guides.

Part I
SYSTEM INSTRUCTIONS

CHAPTER

1 FIRE WEATHER OBSERVATIONS
... how to make them

2 FIRE DANGER INDEXES
... computing

3 FIRE DANGER INDEXES
... compiling
... predicting

4 FIRE WEATHER STATIONS AND INSTRUMENTS
... how to install them

5 FIRE WEATHER STATIONS AND INSTRUMENTS
... how to maintain them

6 FORMS AND TABLES

7 LIST OF FDR AREAS AND MAPS

Chapter 1

FIRE WEATHER OBSERVATIONS

.... how to make them

	Page
WHY OBSERVE FIRE WEATHER	1
WHAT YOU DO	3
To check the indicator scale	5
To measure stick moisture content	5
To determine wind direction	7
To determine wind speed	7
To obtain spot reading of wind speed	9
To determine average afternoon wind speed	9
To use wind conversion tables	11
To read wet and dry bulb temperatures	13
To find relative humidity	13
To measure precipitation	15
To compute timber buildup	17
To find timber buildup code	17
To determine condition of vegetation	18
SOME SPECIAL THINGS TO DO	19
--AND NOT TO DO	19
WHAT TO DO WITH FIRE DANGER RATING RECORDS	20

Why observe fire weather

Your observations of weather and other factors that define forest flamibility are used with tables to determine various Fire Danger Indexes each day. A number of fire control actions are based on these Indexes regularly.

As a Fire Weather observer you play an important part in fire control. Upon your accuracy and devotion to duty depends the accuracy of Fire Danger Rating in your area and the corresponding efficiency of your organization in meeting its fire control responsibilities.

Your observations become part of a permanent record to build up fire climatology. Observations are used by means of computer processing for many fire planning studies. Good forecasts begin with good observations. Administrators are under increasing pressure to take positive steps in the area of fire prevention and public information that are based on fire weather forecasts.

---

*FIRE WEATHER OBSERVATIONS--HOW TO MAKE THEM is also the title of a 10-minute 16 mm motion picture in color and sound. It shows the procedures and techniques you will use to measure fire weather and acquaints you with new instruments and terminology. The film is available through headquarters.

FIRE WEATHER AND DANGER INDEX RECORD

CODE				
4763	2408	031	61	09
NAT. NO.	STA. NO.	ELEV.	YR	MO

FOREST, ~~COUNTY, OR PARK~~ Highland

STATION NAME Greentop Mtn. MONTH Sept. 19 61 DISTRICT Upper Bench

ELEVATION 3083 FT. FIRE DANGER RATING AREA NO. 601 WIND SPEED BY: COUNTER ✓ OTHER ____

DATE	1200 WIND SPEED--MPH 1	1330 PST (OBSERVATION TIME) WIND DIRECTION CODE 2	WIND SPEED--MPH 3	TEMP. DRY BULB 4	TEMP. WET BULB 5	RELATIVE HUMIDITY 6	FUEL STICK MOISTURE CONTENT 7	AVERAGE AFTERNOON WIND SPEED--MPH 8	PRECIPITATION 9	GRASS CODE FOR PERCENT CURED 10	BRUSH--DAYS SINCE NEW GROWTH BEGAN CODE 11	TIMBER BUI 12	TIMBER BUI CODE 13	GRASS BURI 14	BRUSH BUR 15	TIMBER BURNING INDEX 16	IGNITION INDEX 17	FIRE LOAD INDEX BASED ON G, B, AND T FUEL TYPE 18	PREDICTED AREA FIRE LOAD INDEX 19	TIME THUNDERSTORM BEGAN--24 HR. CLOCK 20	TIME THUNDERSTORM ENDED--24 HR. CLOCK 21
										117		056.8			DEX	DEX					
01	09	2	11	089	64	25	045	10	0.00		118	057.6	8		20	21	72	26	18		
02	08	2	10	091	64	22	040	09	0.00		119	058.4	8		18	19	73	20	20		
03	04	2	05	092	65	23	040	04	0.00		120	059.2	8		12	12	73	14	16		
04	02	2	01	094	63	16	035	02	0.00		121	060.2	8		11	11	83	16	16		
05	01	0	00	099	64	13	030	01	0.00		121	061.2	8		11	11	89	16	24		
06	06	2	12	101	62	08	025	11	0.00			062.5	9		38	38	98	60	33		
07	26	2	18	102	61	06	01.5	24	0.00			063.8	9		99	99	98	99	99		
08							(2.0)		**			064.0	9						02	10.30	14.00
09	08	4	09	066	66	99	45.0	09	1.07			042.6	8		01	01	00	00	00	02.00	04.30
10	(08)	5	(06)	079	60	33	18.0	(07)	0.04	↓	↓	041.9	8		04	05	31	03	03		
11																			12		
12																					
13																					
14																					
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					

Figures from last day of August

Estimated for use in buildup computation

Entry for missed observation when it is known to have rained

Wind direction is coded

Estimated wind speed

Predicted Fire Load Index for tomorrow

FEDERAL STATIONS SEND ORIGINALS TO ZONE DISPATCHER. MAKE ADDITIONAL COPIES AS REQUIRED. CDF AND CONTRACT COUNTY STATIONS FORWARD ORIGINALS TO DIVISION OF FORESTRY HEADQUARTERS, SACRAMENTO.

REMARKS: Anemometer cleaned on 9/10/61.

SIGNATURE OF OBSERVER John E. Doe

REVIEWED BY ____

PSW, 4400-173 (R-5, 5100-173) REVISED 1967

SEE INSTRUCTIONS ON BACK OF FORM

INSTRUCTIONS

Use firm sharp pencil for filling out this form. Do not use typewriter, ink, or ballpoint pen.

Do not write in the margins except in the space provided under "Remarks."

Complete all entries at top of form, including codes in box at upper left.* Weather readings should always be made at 1330 Pacific Standard Time. Insertion of the national station number is optional. If station is assigned to two FDR areas, a separate form, completely filled in, should be used for each.

Column Number

1. WIND SPEED. Enter corrected speed in miles per hour to the nearest whole mile at time of observation.*
2. WIND DIRECTION CODE. Enter the code number for the direction from which the wind is blowing.*
3. WIND SPEED. Same as (1) above.
4. DRY-BULB TEMPERATURE. Enter to nearest whole degree.*
5. WET-BULB TEMPERATURE. Enter to nearest whole degree.*
6. RELATIVE HUMIDITY. Enter to nearest whole percent.* Never enter 100 percent.
7. FUEL STICK MOISTURE CONTENT. Enter to nearest whole percent for 10.0 or above and to nearest 0.5 percent when less than 10 percent.* When over 50 percent enter 50.0. If observation is missed, fuel stick moisture must be estimated.
8. AVERAGE AFTERNOON WIND SPEED. Enter corrected average speed to nearest whole mile.*
9. PRECIPITATION. Enter to nearest 0.01 inch the 24-hour amount or precipitation. If none has occurred enter 0.00. If last observation was missed, enter the accumulated amount in rain gage.*
10. GRASS--CODE FOR PERCENT CURED. Make entry only if station is computing burning index for grass fuel type. Enter 0, 1, 2, 3, or 4.*
11. BRUSH--CODE FOR DAYS SINCE NEW GROWTH BEGAN. Make entry only if station is computing burning index for brush fuel type. Enter in box days since new growth each day until 121 is reached. In column enter code corresponding to entry in box.* Box at top of column is for transcribing entry from last day of previous month.
12. TIMBER BUILDUP. Make entry only if station is computing burning index for timber fuel type. Enter buildup in tenths.* At top of column enter buildup from last day of previous month. If observation is missed, timber buildup must be computed and entered using the estimated FSM of column 7.
13. TIMBER BUILDUP CODE. Enter code number in this column for timber buildup shown in column 11.*
14, 15, 16. BURNING INDEX. Compute and enter.*
17. IGNITION INDEX. Compute and enter.*
18. FIRE LOAD INDEX. Circle G, B, or T in column heading to indicate fuel type for which the Fire Load Index is computed [see FDR station list]. Compute Fire Load Index and enter.* If two Fire Load Indexes are computed, use a separate form for each--do not use column 18 or the margin.
19. PREDICTED AREA FIRE LOAD INDEX. Enter tomorrow's predicted Fire Load Index for the area in the column opposite tomorrow's date.
20. TIME THUNDERSTORM BEGAN--24-HOUR CLOCK. Record beginning when lightning is first seen or thunder heard. At lookouts or other stations having unrestricted visibility record only thunderstorms not more than 30 miles away. If no storms, leave blank. Make entries to nearest half-hour.
21. TIME THUNDERSTORM ENDED--24-HOUR CLOCK. Record end when last lightning is seen or thunder heard. Visibility restrictions as above. If no storms, leave blank. Make entries to nearest half-hour.

NOTE: The black dots represent the number of digits to be entered in the column or box.

*See coding tables in Fire Danger Rating book for coding instructions.

What you do

Study the sample FIRE WEATHER AND DANGER INDEX RECORD form on the opposite page. It shows:

WHEN observations are to be made at your Fire Weather Station
WHAT you are to observe
HOW observations are to be recorded

Ask headquarters for a supply of FW&DI Record Forms. Clip one to a board or other firm writing surface.

To get acquainted with your Station, fill in the blanks at the top of the FW&DI Record. This includes the boxes at the upper left. See Coding Tables for elevation and month codes. Dots indicate the number of digits to be entered. Headquarters will provide you with the information you need.

Just under the heavy black line on the FW&DI Record note the figures 1200, and 1330. These are the hours every day (Pacific Standard Time) that you will make the record observations.

What you are to record at each observation time is shown by the column headings in each time-block on the FW&DI Record. The number of dots at the top of each column represent the number of digits to be entered in these columns. Look at the instructions on the back. Compare them with the entries on the sample form. Note that many entries are coded. Before entering look up the code figures on the Coding Tables provided with Wind Conversion and Relative Humidity tables.

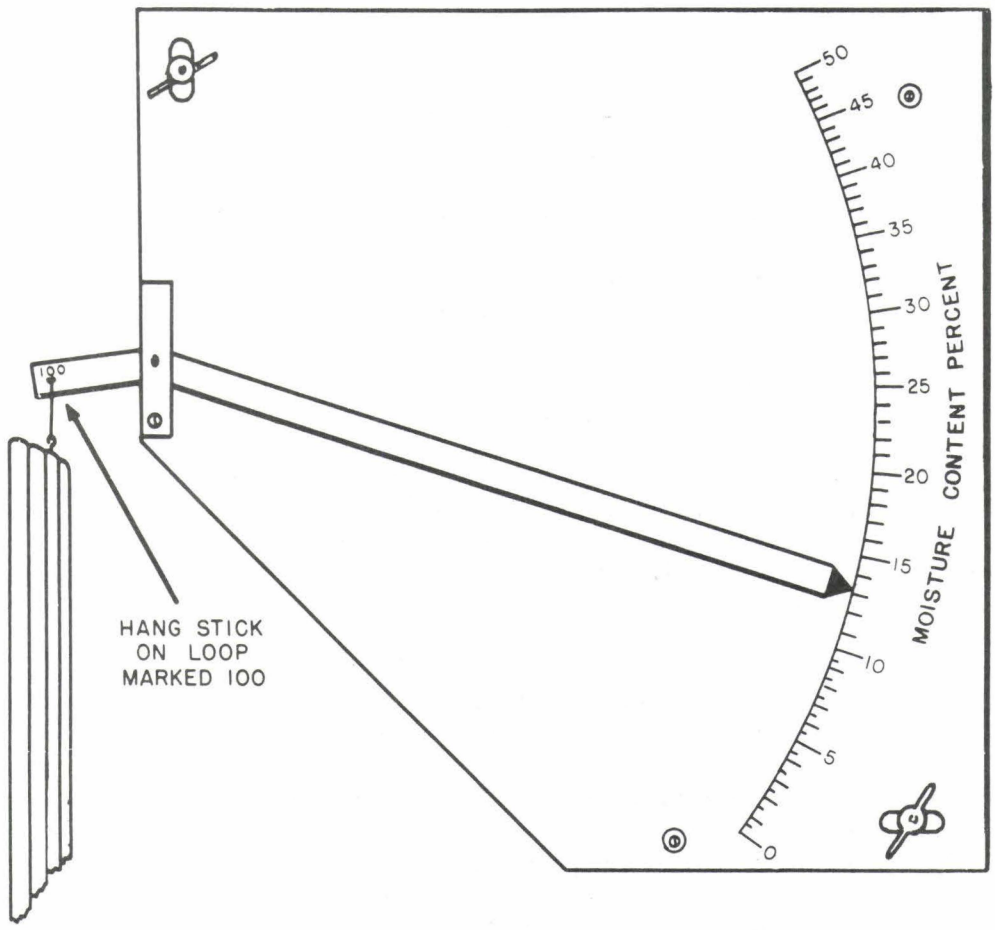
Equip yourself with a watch and pencil. Take them with this handbook and a FW&DI Record to the Fire Weather Station.

To learn how to make observations, make several trials of each item shown on the FW&DI Record. Instructions in this handbook tell you how. Refer to them as you go.

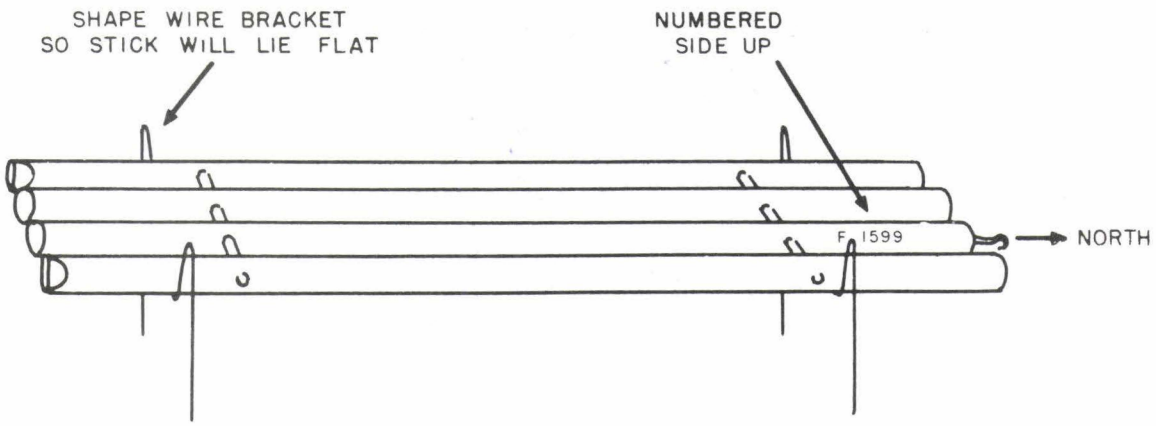
Record each trial observations, check it with the instructions and with the entries on the sample FW*DI Record.

Instructions on how to use the computing tables to find the Grass, Brush, and Timber Burning Indexes and the Ignition and Fire Load Indexes are Part 1, Chapter 2 of this handbook.

FUEL MOISTURE INDICATOR STICK SCALE



FUEL MOISTURE INDICATOR STICK



To check the indicator scale

Before each reading hang the small weight found in the instrument shelter on the wire loop marked 100. If the pointer moves to zero percent and remains there, the scales are level.

If the pointer does not go to zero percent, loosen the wing nuts that hold the brass scale plate to the supports and turn the plate around the upper-right-hand bolt until the pointer indicates zero. Tighten the wing nuts and check to see that the indicator is still at zero.

To measure stick moisture content

Use tissue paper or tongs to pick up the fuel moisture stick from its wire supports. Handle it carefully.

Look at the stick. If it is splattered with mud, be sure the mud is dry, then brush it off being careful not to rub the dirt into the stick. Shake off any surface water that may have collected due to rain. If the stick is checked, split, covered with oil, paint or otherwise damaged, do not use it. Ask headquarters for a new one.

Hang the stick on the Fuel Moisture Indicator Stick Scale on the wire loop marked 100. Tap the pointer lightly to make sure that it swings freely. When it stops moving, note the reading and enter it on the Fire Weather and Danger Index Record according to the instructions on the back of the form. Note that you enter the reading to the nearest 0.5 percent up to 09.5 and to the nearest whole percent for 10.0 or above. When over 50 percent enter 50.0.

Replace the stick on the wire supports with the numbered side up or stapled side down, and the hook end pointing north.

> Use the same set of sticks used during the summer. New sticks will replace the old set at the regular time around the beginning of the fire season in May or June.

Take the stick readings only once a day at 1330 P.S.T. It is not necessary to weigh them during heavy rains. Assume they are saturated and enter 50.0 in column 8 on the FW&DI Record.

Once sticks are covered with snow, do not dig them out to be weighed. Simply enter 50.0. When the snow has melted below stick level, proceed with the routine weighing procedures.

ANEMOMETER

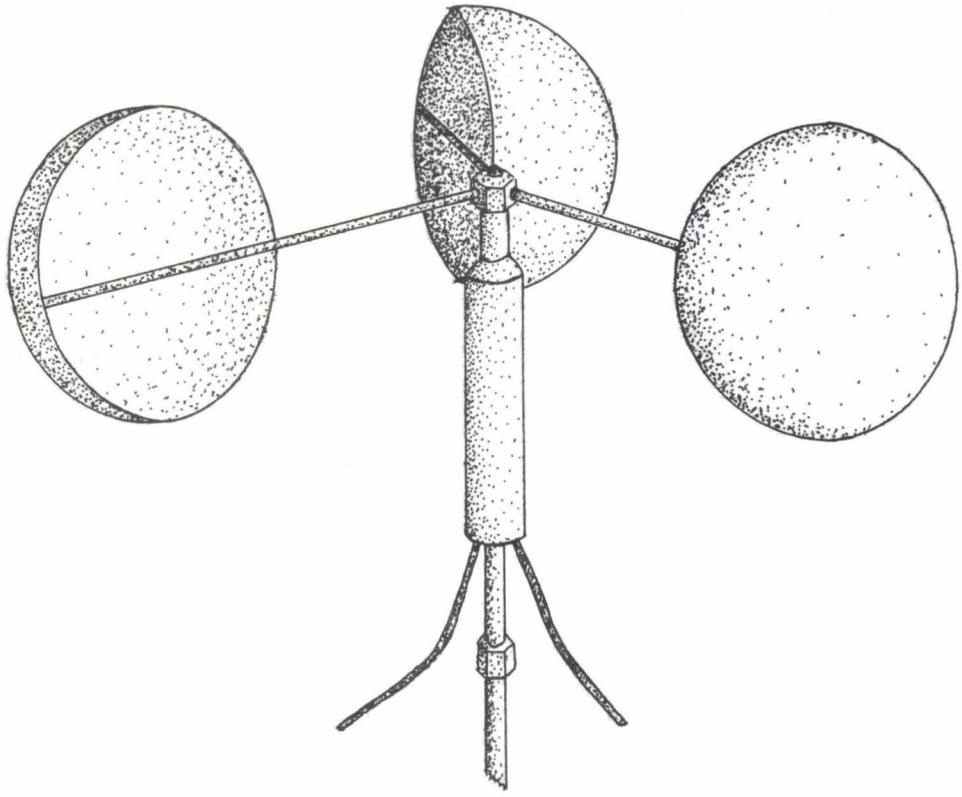


TABLE FOR CORRECTING INDICATED SPEED TO ACTUAL SPEED

ANEMOMETER	INDICATED SPEED	CORRECTION
FRIEZ 3-CUP(LARGE)	1 TO 16 M.P.H.	ADD 1 M.P.H.
FRIEZ 3-CUP(SMALL)	ALL SPEEDS	ADD 1 M.P.H.
CHISHOLM 3-CUP	1 TO 10 M.P.H.	ADD 1 M.P.H.
	10½ TO 21½ M.P.H.	ADD 1½ M.P.H.
	22 M.P.H. AND OVER	ADD 2 M.P.H

To determine wind direction

If no wind vane is available, watch the flag, chimney smoke, trees or grass for a moment to determine FROM what direction the wind is blowing. In very light winds throw a little dust in the air and notice which way it drifts. Make coded entry according to instructions on the back of the Fire Weather and Danger Index Record. This observation is made at 1330 P. s. t. only for the Fire Weather and Danger Index Record.

To determine wind speed

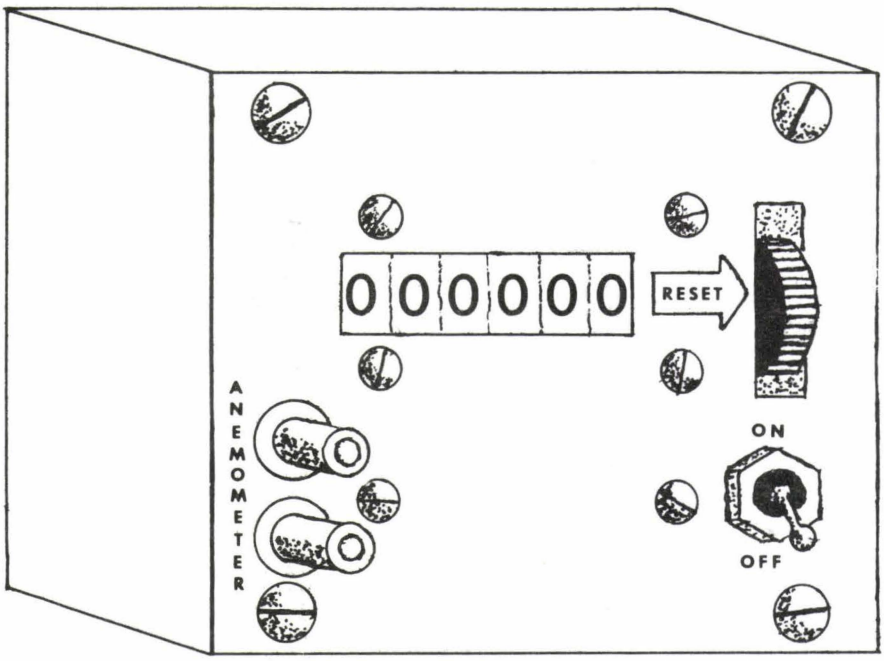
You will need your watch. Switch on the buzzer, counter, or other signal device. Start timing at the first signal and count the next signal as number one. For two or more whole minutes count the number of signals: buzz sounds, or double clicks.

Divide the number of signals by the number of minutes you have been counting (the more minutes the better results). At low speeds this will give you the indicated wind speed only. This is corrected to actual wind speed according to the type of anemometer you are using. See table on opposite page.

Enter actual corrected wind speed according to instructions on the back of the FW&DI Record.

If no wind measuring instruments are available, or if they are out of order, you will need to estimate wind speeds. These estimated wind speeds must be encircled on the FW&DI Record.

RESET-TYPE COUNTER



To obtain a spot reading of wind speed with reset-type counter

Read the counter, and at the end of two minutes read it again.

Subtract the first reading from the second.

Divide the result by 2. This will give the indicated wind speed in miles per hour which must be corrected for the type of anemometer being used. (See Conversion Tables or Page 6 of this chapter.) Spot readings are required at both the 1200 and 1330 P. s.t. observations even though a counter is used to determine the average afternoon wind speed.

To determine average afternoon wind speed

If you are using a buzzer or light, add the 1200 and 1330 P. s.t. actual wind speeds, divide by 2 and enter in Column 9 on the Fire Weather and Danger Index Record to the nearest whole mile. If the division leaves a remainder of 1/2, round off to the nearest even whole mile.

If your station is equipped with a reset-type wind counter:

At the beginning of the time period, (1200P. s.t.), check to see that the counter reads zero, then turn it on.

At the end of the time period, (1330P. s.t.) read the counter, turn it off, and reset to zero.

Divide that reading by the number of minutes in the time period.

Correct the answer for the type of anemometer being used. (See Conversion Tables or Page 6 of this chapter.)

Using reset-type counter

Example:

Counter set to zero at 1200 reads 1170 at 1330.
Number of minutes is 1-1/2 hours x 60 = 90.
1170 ÷ 90 = 13.

(This is the indicated speed and must be corrected for the type of anemometer being used.)

Using non-reset-type counter

Example:

Counter reads 04659 at 1200 and 05310 at 1335.
05310 - 04659 = 651.
Number of minutes is 1 hour x 60 + 35 = 95.
651 ÷ 95 = 6.8.

(This is the indicated speed and must be corrected for the type of anemometer being used.)

If, during the time period, the counter has reached its maximum number (100,000) and started over, add 100,000 to the final reading and subtract the beginning reading from this total. For example, if the reading at the beginning of the period was 97,242 and the reading at the end of the period was 1242, add 100,000 to 1242 (101,242) and then subtract 97,242. 101,242 - 97,242 = 4000.

To determine average afternoon wind speed (con't)

If your station is equipped with a non-reset wind counter:

At the beginning of the time period, read the counter and turn it on.

At the end of the time period read the counter and turn it off.

Subtract the reading at the beginning of the time period from the reading at the end of the time period.

Divide the resulting number by the number of minutes in the time period.

Correct the answer for the type of anemometer being used. (See below.)

The time period for the average afternoon wind speed normally will be from 1200 to 1330 P.s.t. Enter the average afternoon wind speed in Column 9 8 on the Fire Weather and Danger Index Record.

To use wind conversion tables

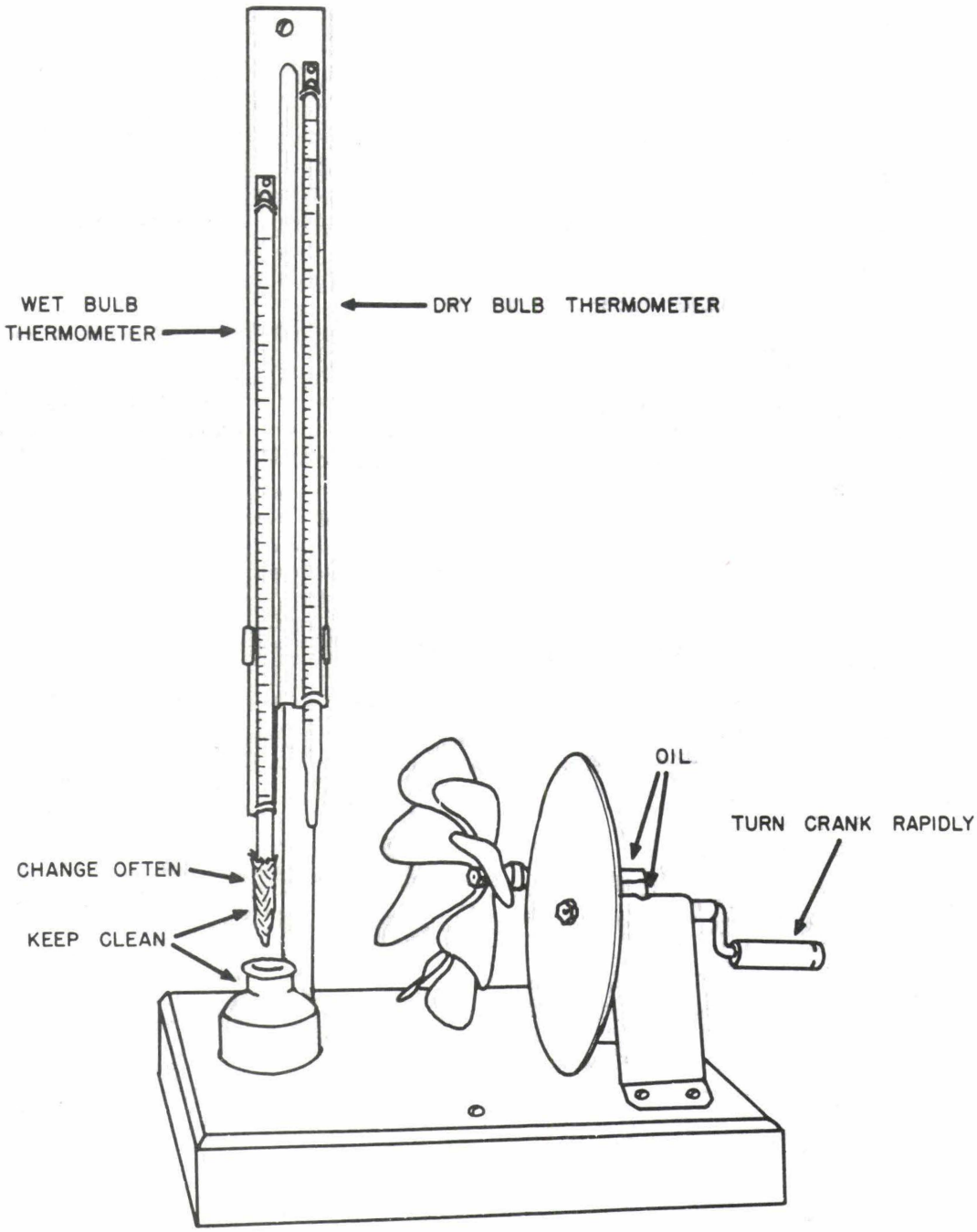
The wind Conversion Tables are one of the tools you will be using daily. There are two tables:

Table 1. For Chisholm type anemometers: Enter the reading for the average wind speed obtained from this table directly on the FW&DI Record.*

Table 2. For all other types of anemometers read the Table, add the correction factor for the anemometer given on Page 6 of this chapter and record the total on the FW&DI Record.

*Note: If you are using a wind counter no reference to the table on Page 6 of this chapter is necessary. The correction for a Chisholm type anemometer has been made for you.

FAN PSYCHROMETER



To read wet and dry bulb temperatures

Check the wet bulb thermometer. Is the muslin wick at least 1 inch longer than the bulb and not stretched so that the bulb shows through the meshes? Is it clean and free of scale? Is the water in the glass container clean? if not, make changes necessary to bring up to standard. Distilled water should be used at stations where the domestic water contains alkali. The wicking should be changed at least every two weeks, or oftener if it becomes dirty or crusted with alkali.

Raise the glass container, dipping the wick on the wet bulb thermometer in the water and holding it there until the wick is thoroughly wet. Crank the fan RAPIDLY, at the same time watching the top of the Column in the thermometer. It will fall slowly. Continue to crank for a few seconds after the lowest point is reached . Read both dry and wet bulbs at the same time and enter readings in Columns ~~5~~ 4 and ~~6~~ 5 on the Fire Weather and Danger Index Record.

SPECIAL WINTER INSTRUCTIONS

When the wet bulb temperature is below freezing special procedures are necessary. The water on the wet bulb must be completely frozen before attempting to get a wet bulb reading. The best method to use during below freezing weather is to wet the muslin with lukewarm water about 10 minutes before observation time. All old ice on the muslin should be melted. At the time of observation, the psychrometer should be fanned until the lowest reading is obtained. The thermometers are then read to the nearest 1/2 degree for making the relative humidity computation. They are entered, however, to the nearest whole degree on the FW&DI Record. For below zero readings a minus sign must precede the entry of the coded temperatures.

To find relative humidity

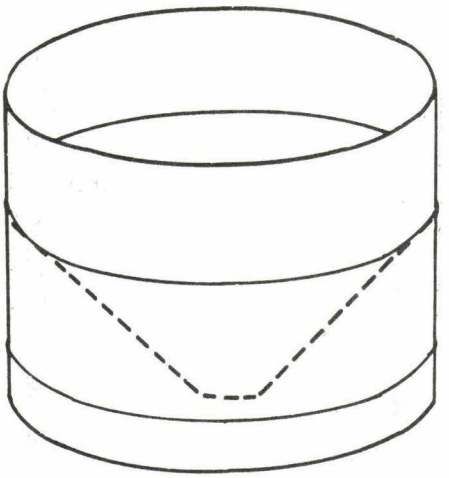
Note the elevation you entered at the top of your Fire Weather and Danger Index Record. Does it correspond to the elevation given on the Relative Humidity Table provided by headquarters? If not, exchange the table for the correct one. All Relative Humidity Tables should have a publication date of Oct. , 1963 or later. Study the instructions on How To Use The Table printed on the front.

Using the wet and dry bulb temperatures you have obtained, read the Relative Humidity from the table and enter it in Column ~~7~~ 6 on the FW&DI Record.

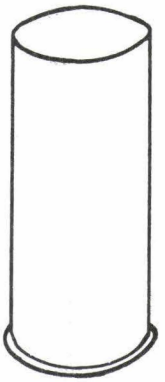
SPECIAL WINTER INSTRUCTIONS

For temperature readings below 20° F special Relative Humidity Tables are available. Enter these tables with the wet and dry bulb temperatures read to the nearest 1/2 degree to obtain the relative humidity.

RAIN GAGE

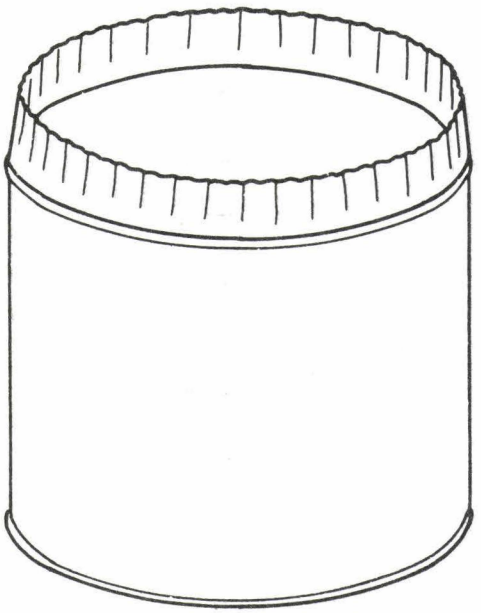


FUNNEL TOP
REPLACE AFTER MEASUREMENT



MEASURING CYLINDER
LEAVE EMPTY AND CLEAN

(Remove funnel and measuring cylinder for winter use)



LARGE CYLINDER
KEEP LEVEL AND CLEAN

RAIN GAGE STICK
KEEP IN
INSTRUMENT SHELTER

To measure precipitation

Carefully remove the funnel top from the rain gage. A measuring stick is provided with each gage. SLOWLY insert the dry stick into the measuring cylinder, being careful to keep the stick straight up and down. Withdraw it and read the stick at the height the water reached and enter according to instructions on the back of the Fire Weather and Danger Index Record.

Do not wipe the stick with your hands. Empty measuring cylinder and replace the funnel top.

If the rain more than fills the small cylinder and has overflowed into the large one, measure the water in the small cylinder, then pour it out. Pour the water from the large cylinder into the smaller one and measure. Add the measurements together and enter the total figure in Column ~~10~~ 9 on the FW&DI Record.

SPECIAL COLD WEATHER INSTRUCTIONS

When precipitation in the form of snow, hail, or sleet begins to fall, remove the funnel top and small measuring cylinder. The overflow can alone is used to catch the precipitation. During the winter season, yearlong stations should leave the funnel and measuring cylinder off. This is necessary in order to prevent water from freezing in the measuring cylinder and bulging or rupturing it. At the usual time for observations, warm the overflow can slightly but not enough to cause evaporation, and pour the water into the small cylinder. Measure it and enter in Column ~~10~~ 9 on the FW&DI Record. An alternate method is to melt the snow or ice by pouring into the overflow can a known amount of warm water. This amount must then be deducted from the total amount measured to determine the amount of precipitation.

SAMPLE TIMBER BUILDUP COMPUTATIONS

Date	(From Col. 7 FW&DI Record) Fuel Stick Moisture Content (percent)		(From Coding Tables) Buildup Addition		(From Col. 12 FW&DI Record) Previous day's Buildup		(From Col. 9 FW&DI Record) 24-hour Precipitation (inches)		(Enter in Col. 12 FW&DI Record) Today's Buildup
01	07.5		0.4		1/ 000.0		0.00		000.4
02	06.5		0.5		000.4		0.00		000.9
03	05.5		0.6		000.9		0.00		001.5
04	04.0		0.8		001.5		0.00		002.3
05	03.5		1.0		002.3		0.00		003.3
06	02.5		1.3		003.3		0.00		004.6
07	24.0	➧	0.0	+	004.6	-	0.08 (.08 x 20 = 1.6)	=	003.0
08	18.0		0.1		003.0		Trace (no deduction)		003.1
09	09.0		0.2		003.1		0.00		003.3
10	06.0		0.5		003.3		0.00		003.8
11	04.0		0.8		003.8		0.00		004.6
12	03.5		1.0		004.6		0.00		005.6
13	05.5		0.8		005.6		Trace		006.4
14	(14.0) (estimated)		0.1		006.4		Missing		006.5
15	(14.0) (estimated)		0.1		006.5		Missing		006.6
16	09.0		0.2		006.6		0.35 (.35 x 20 = 7.0)		000.0
17	06.0		0.5		000.0		0.00		000.5

1/ Computation of the buildup begins at zero at yearlong stations on January 1.

FUEL STICK MOISTURE CONTENT ➧ BUILDUP ADDITION + PREVIOUS DAY'S BUILDUP - PRECIPITATION x 20 = TODAY'S BUILDUP

To compute timber buildup

You will make this daily computation if Timber is one of the fuel types in your Rating Area. Yearlong stations will continue the computation of Timber Buildup throughout the year. Stations designated as pre-season stations will begin this computation not later than May 1 and will use the Timber Buildup from a nearby yearlong station as the starting value. Headquarters will relay the first day's Buildup entry from pre-season stations to all stations opening later.

Fuel Stick Moisture Content	Buildup Addition
02.5 or less	1.3
03.0 or 03.5	1.0
04.0 or 04.5	0.8
05.0 or 05.5	0.6
06.0 or 06.5	0.5
07.0 to 08.5	0.4
09.0 to 12.0	0.2
13.0 to 19.0	0.1
20.0 and over, or ground covered with snow.	0.0

Locate your afternoon Fuel Stick Moisture Content percent (from Col. ~~8~~ 7, FW&DI Record) on the table above. Add the Buildup Addition given for that percent to the previous day's Timber Buildup (from Col. ~~13~~ 12, FW&DI Record). This must be done even if precipitation occurred.

Multiply the amount of Precipitation in inches (from Col. ~~10~~ 9) by 20 and subtract from above total. This gives you the Rimber Buildup for Today. Enter in Column ~~15~~ 12 on the FW&DI Record. Note that the Timber Buildup can go beyond 100.0.

WHEN OBSERVATIONS ARE MISSED

When 1330 Pst. Fuel Stick Moisture Content observations are missed, estimate either the missing reading(s), or an average for the period if several days in a row are missed. Use your best estimate based on general weather conditions that occurred on the missed days. Estimated readings must be encircled on the FW&DI Record.

When precipitation observations are missed, record the amount that has accumulated in the gage on the Fire Weather &Danger Index Record, and compute the buildup as if it had all occurred on the day it was measured.

To find TIMBER BUILDUP CODE consult your Coding Tables. Enter code number in Column ~~14~~ 13 on the FW&DI Record.

To determine condition of vegetation

Headquarters will provide most Fire Weather Stations with the information you will record in Columns 10 and 11 of your Fire Weather and Danger Index Record.

However, a station observer will sometimes be asked to make observations on the condition of vegetation for the whole Fire Danger Rating Area. If you are designated as one of these, use the following guidelines to determine the condition of vegetation:

For GRASS Fuel Type determine the percent that the grass is cured. Obtain the code for this percent from the coding tables and record it each day in Column 10 on the FW&DI Record. Initial state of curing may start at any coded class, not necessarily at 0, according to your estimate of actual curing conditions. After this initial determination, grass codes must run in unbroken sequence. Do not skip coded classes. When new grass growth starts, the sequence of codes will be reversed.

> Enter code for 0% when new green growth can be easily seen above the old. Seed heads are absent or not fully developed. Fast spread of fire is not possible except under severe burning conditions.
>
> Enter code for 100% when the grass blades are yellow and dry, the seed heads are dry, and the seed may be shaken out. The grass will burn readily if you touch a match to it at mid-day. Any new grass is not yet high enough to slow the spread of fire.
>
> Enter code for your estimate of percent (25, 50, or 75 only) that grass is cured if it is between 0% and 100%.
>
> Report the above calculations to headquarters.

For BRUSH Fuel Type select, on a south exposure, the brush species that creates the greatest fire control problem. Inspect the brush closely. As soon as the leaders have begun to grow and the first leaves are fully opened and separated from each other on at least half the area covered by shrubby vegetation, note the date. Begin with an entry of "1" on that date in the box on the left side of the column under "Brush--Days Since New Growth Began" on the FW&DI Record. To the right of the box in Column 12 enter the corresponding code from your coding tables. Report the date to headquarters. From then on throughout the fire season all stations within the Rating Area will enter the total number of days since that date in the box, and the corresponding code to the right of the box in Column 11.

Do not count beyond 121 days. The code for all periods after 121 days will be "11." (See sample of FW&DI Record on Page 2 of this chapter.)

Yearlong stations will use 121 days (code 11) during the time of the year before new brush growth starts. Similarly, during preseason periods of fire danger before new growth starts, all stations computing a Brush Burning Index will use code 11.

Some special things to do

Keep these instructions in a convenient place and refer to them often.

Report all broken instruments to headquarters immediately. Note the date of breakage and repair in the Remarks Section of the Fire Weather and Danger Index Record.

Oil the anemometer and psychrometer at least once a month with the special oil provided by headquarters. If your anemometer is a Chisholm, it needs to be serviced only at the beginning of the fire season. At year-long stations two other complete servicings should be performed, one about November 1 and the other about February 1. Winter grade anemometer oil must be used for the winter servicings.

Keep your rain gage free of leaves, dust, and insects and so exposed that you can accurately measure any rain that falls.

Send the completed FW&DI Record and one carbon copy to headquarters at the end of each month.

Keep your FW&DI Record clean and legible. Check your arithmetic to make sure your averages are correct.

Keep your Fire Weather Station enclosure free of weeds and debris. Keep the shelter painted gloss white.

Ask headquarters for a supply of psychrometer wicking and change wicks every two weeks--oftener if necessary.

Maintain a clean bed of dry dead grass, leaves, or needles free of green or growing grass or weeds under the fuel moisture sticks.

. . . . and not to do

Do not make repairs on weather instruments unless requested to do so by headquarters.

Do not move or rearrange the shelter, instruments, rain gage, anemometer, or fuel moisture stick supports. If changes become necessary, report this to headquarters.

Do not use hard water or water that leaves a scaly deposit on the wick or on the wet bulb thermometer.

What to do with Fire Danger Rating records

Fill out as many copies of the Fire Danger Rating Forms as are designated for your station. Refer to Agency instructions in Part II of this Handbook. Check all copies and forward them to headquarters as required. FEDERAL STATIONS will forward the original to the Riverside Forest Fire Laboratory, Riverside. CALIFORNIA DIVISION OF FORESTRY and CONTRACT COUNTY STATIONS will forward the original to Division of Forestry Headquarters, Sacramento. Forms will be checked in the headquarters office for accuracy and completeness.

Make your records LEGIBLE, ACCURATE, and COMPLETE. Use pencil only.

Chapter 2

FIRE DANGER INDEXES

. . . . computing

	Page
FOREWORD	1
WHAT YOU DO	
To compute GRASS BURNING INDEX	2
To compute BRUSH BURNING INDEX	3
To compute TIMBER BURNING INDEX	4
To compute IGNITION INDEX	5
To compute FIRE LOAD INDEX	6

Forward

The Wildland Fire Danger Rating System provides three indexes to help plan forest protedtion activities: (1) a Burning Index which is a relative measure of the effect of current weather conditions and fuel flammability on rate of spread and fire intensity, (2) an Ignition Index which is a relative measure of fire probability due to weather effects on fuels, and (3) these two indexes are combined into a Fire Load Index which is a relative measure of the potential daily job load.

In addition to making and recording daily fire-weather observations, you may be asked to compute these indexes for your station.

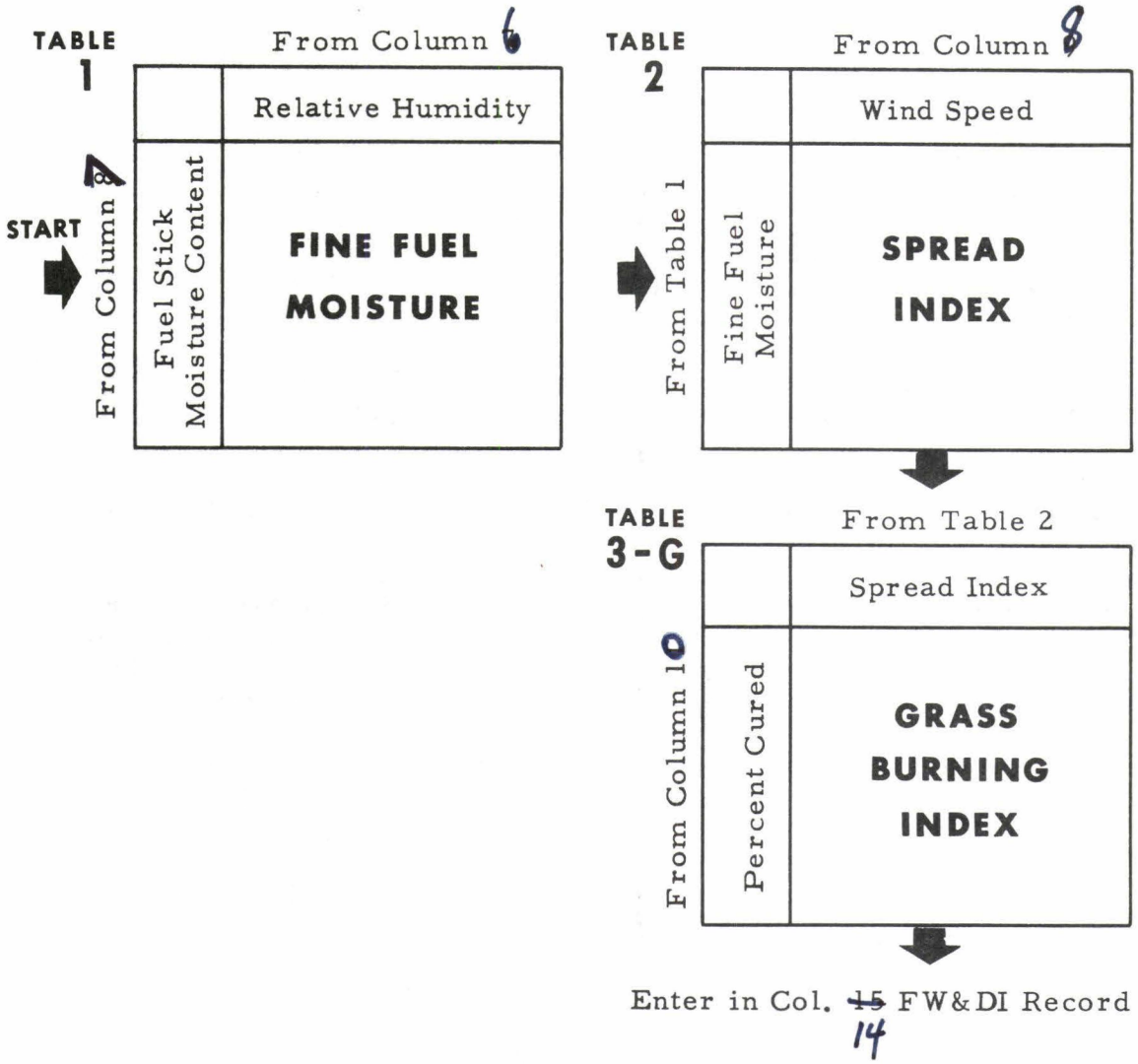
These instructions tell how to compute the Burning Index (for each of the three principal fuel types--grass, brush, and timber), the Ignition Index, and the Fire Load Index.

Headquarters will supply information on which Burning Indexes you are to compute and on whether or not you are to relay your computations to them. A set of computing tables is located in Part I, Chapter 6 of this Handbook. These tables are the tools you will use in your computations.

Enter your computations daily in the appropriate columns on the Fire Weather and Danger Index Record (Cols. ~~15~~ 14, ~~16~~ 15, ~~17~~ 16, ~~18~~ 17, and ~~19~~ 18).

You will note that on the bottom of the Spread Index table (table 2) Provision is made for including the effect of steep slopes on fire spread. This is done by entering the table with wind speed on one of the bottom two lines, depending on the slope class. These two lines for slope classes are to be used only for computing a special Spread Index and Burning Index for a specific place where a fire may be in progress and an estimate of the slope is available. In the daily Burning Index computation made at 1330 P. s. t. the wind speed line at the top of the table must be used. This corresponds to Slope Class I, which is 0 to 40%.

GRASS BURNING INDEX

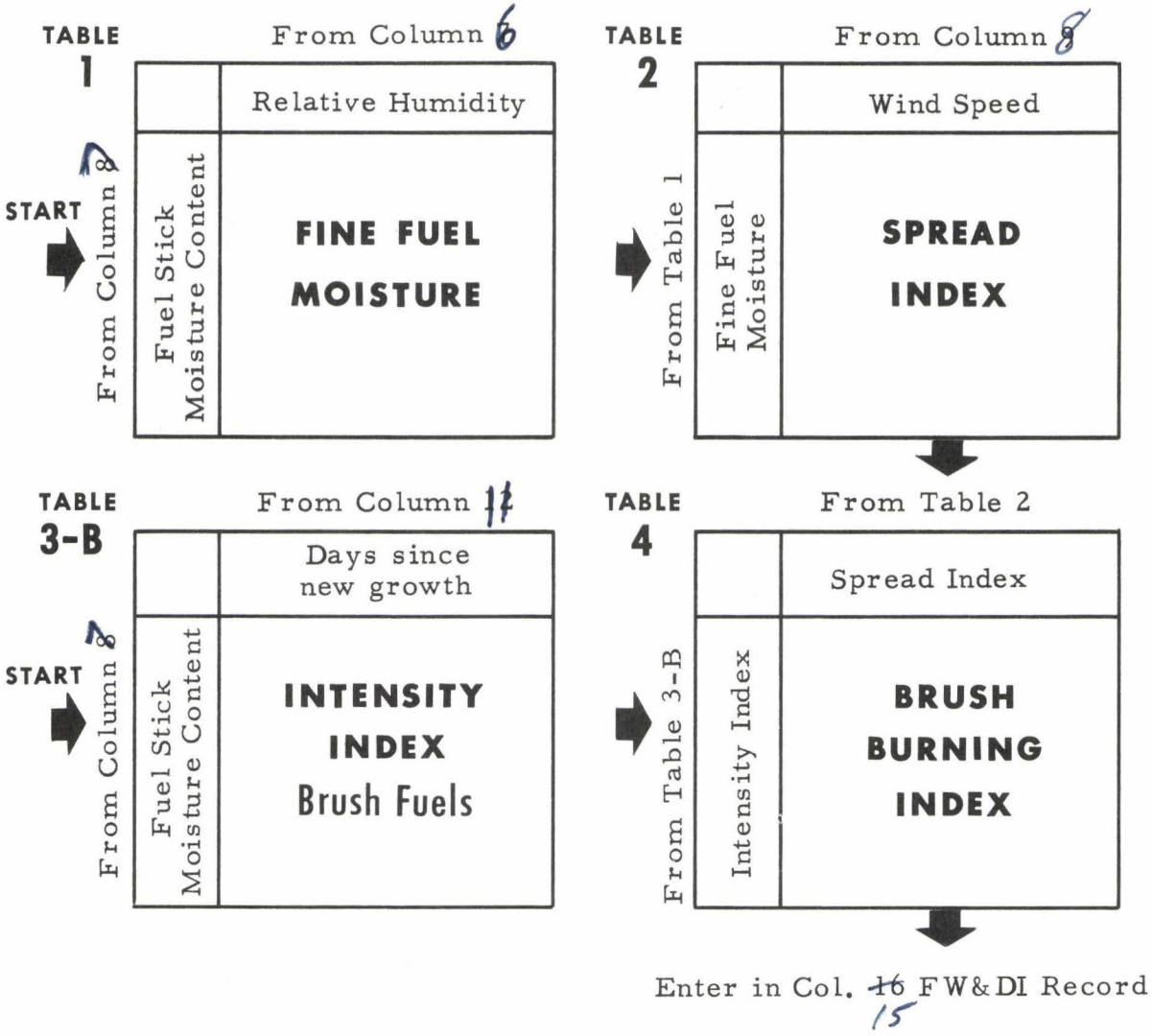


To compute a burning index for grass fuels

Refer to the computing tables in Chapter 6 and
Follow the steps indicated in the above diagram. The squares represent the 3 tables used to compute the Burning Index for Grass. At the top and left-hand side of each are the entries you will use to read each table. They are obtained from the columns indicated on the Fire Weather and Danger Index Record and/or the previous table.

Beginning with No. 1, read the table where the 2 entries, shown on the diagram, intersect. This will give you a reading for Fine Fuel Moisture. Repeat on Table 2 using the Fine Fuel Moisture reading obtained from Table 1. Repeat again on Table 3-G using the Spread Index reading obtained from Table 2. This is your Grass Burning Index. Record it in Column ~~15~~ 14 of your FW&DI Record.

BRUSH BURNING INDEX



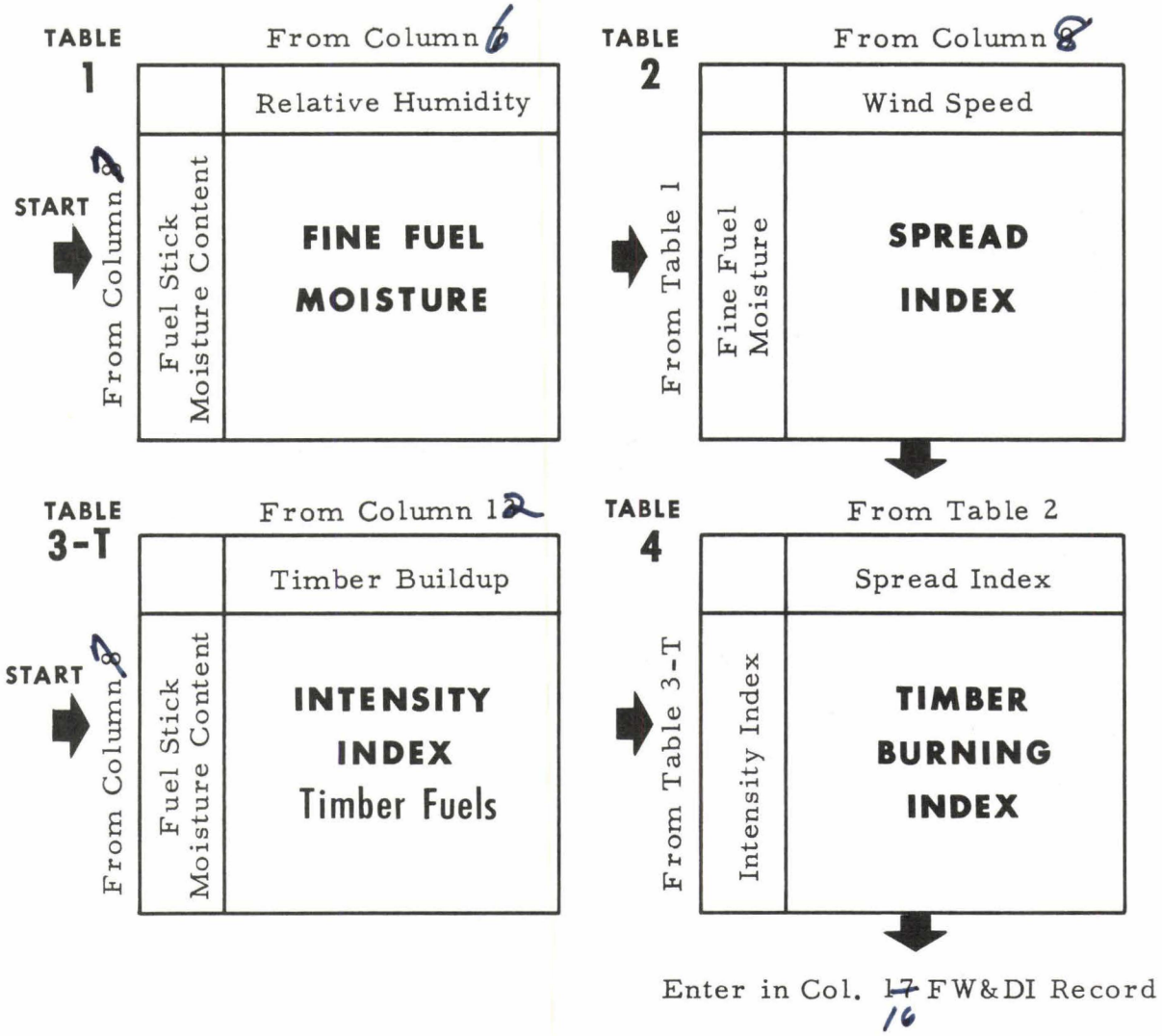
To compute a burning index for brush fuels

Refer to computing tables in Chapter 6 and
Follow the steps indicated in the above diagram. The squares represent the 4 tables used to compute the Burning Index for Brush. At the top and left-hand side of each are the entries you will use to read each table. They are obtained from the columns indicated on the Fire Weather and Danger Index Record and/or the previous table.

Beginning with No. 1, read the table where the two entries, shown on the diagram, intersect. This will give you a reading for Fine Fuel Moisture. Repeat on Table 2 using the Fine Fuel Moisture reading obtained from Table 1. Make a note of this Spread Index reading.

Start again with Table 3-B and read at the intersection of the two entries. This will give you a Brush Intensity Index reading. Repeat on Table 4 using the Indensity Index reading from Table 3-B and the Spread Index reading from Table 2. This is your Brush Burning Index. Record it in Column 16 of your FW&DI Record.

TIMBER BURNING INDEX



To compute a burning index for timber fuels

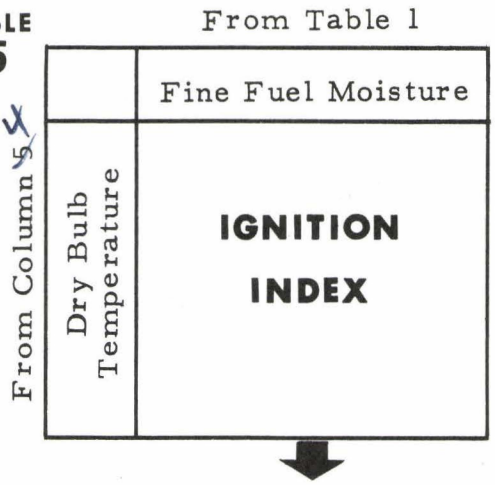
Refer to computing tables in Chapter 6 and
Follow the steps indicated in the above diagram. The squares represent the 4 tables used to compute the Burning Index for Timber. At the top and left-hand side of each are the entries you will use to read each table. They are obtained from the columns indicated on the Fire Weather and Danger Index Record and/or the previous table.

Beginning with No. 1, read the table where the two entries, shown on the diagram, intersect. This will give you a reading for Fine Fuel Moisture. Repeat on Table 2 using the Fine Fuel Moisture reading obtained from Table 1. Make a note of this Spread Index reading.

Start again with Table 3-T and read at the intersection of the two entries. This will give you a Timber Intensity Index reading. Repeat on Table 4 using the Intensity Index reading from Table 3-T and the Spread Index reading from Table 2. This is your Timber Burning Index. Record it in Column ~~17~~ 16 of your FW&DI Record.

IGNITION INDEX

TABLE 5

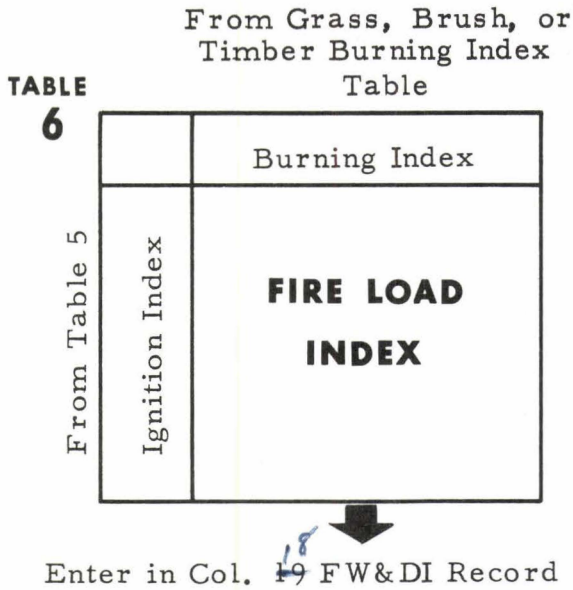


Enter in Col. ~~18~~ 17 FW&DI Record

To compute an ignition index

Enter the Ignition Index table, (chapter 6) represented by the square above, with the Fine Fuel Moisture from Table 1 and the Dry Bulb Temperature from Column ~~5~~ 4 of the FW&DI Record. Where the two entries intersect, read your Ignition Index. Record it in Column ~~18~~ 17 of your FW&DI Record.

FIRE LOAD INDEX



To compute a fire load index

Enter the Fire Load Index table (chapter 6) represented by the square above, with the Ignition Index from Table 5 and the Burning Index for the fuel type in your area. Where the two entries intersect read the Fire Load Index. Record it in Column ~~19~~ 18 of your FW&DI Record. Stations that regularly compute the Burning Index for more than one fuel type will be notified by headquarters which Burning Index should be used to compute the Fire Load Index.

Chapter 3

FIRE DANGER INDEXES

. . . . compiling

. . . . predicting

	Page
FOREWORD	1
WHAT YOU DO	
To compile FIRE DANGER INDEXES	3
To estimate missing station indexes	5
To determine the FIRE WEATHER SEVERITY	7
To determine Departure from Normal FIRE LOAD INDEX	7
To predict BURNING, IGNITION and FIRE LOAD INDEXES	9

Foreword

The Station Fire Danger Indexes are only samples of conditions in the Fire Danger Rating Area in which the station is located. As such they represent the burning conditions, ignition probability, and potential fire load in a limited area around the station and similar areas within the Rating Area. To obtain representative indexes for the entire Rating Area it is necessary to compile an average of all Station indexes for the area.

For administrative purposes it is frequently necessary to compare the potential fire load of the current season to date with that of the previous season, a normal season, or a particularly bad or easy season. The Fire Weather Severity, which is simply the cumulated daily Fire Load Indexes, provides a convenient means for making such comparisons.

More detailed comparisons within the season are made possible by computing the departure from normal Fire Load Index by 10-day periods (the last period of the month being 8, 9, 10 or 11 days depending on the number of days in the month). This provides a direct comparison between the potential fire load and that which can normally be expected to occur at that time of year.

Planning the needs of fire control and carrying out the measures called for prior to the peak danger period of the day is the key to effective fire control organization management. This means that the Fire Danger Indexes, upon which these needs are based, must be predicted for the day ahead.

DANGER INDEX AREA AVERAGE SUMMARY SHEET

Month Sept. 19 61

Forest, ~~County or Park~~ Highland

AREA, FUEL TYPE INDEX	FIREWEATHER STATION NAME	DATE 1	2	3	4	5	6	7	8	9	10
601 Timber B.I.	Greentop L.O.	21	19	12	11	11	38	99	(18)	01	05
	Pow Wow	17	14	11	09	20	23	99	17	03	06
	Burnt Peak L.O.	16	14	10	10	17	20	95	14	02	07
	Arroyo Grande	14	14	13	11	16	17	67	14	03	06
	Total	68	61	46	41	64	98	360	63	09	24
	Avg.	17	15	12	10	16	24	90	16	02	06
601 I.I.	Greentop L.O.	72	73	73	83	89	98	98	(22)	00	31
	Pow Wow	73	63	65	73	90	90	95	24	00	15
	Burnt Peak L.O.	62	63	63	72	83	89	93	16	00	12
	Arroyo Grande	83	73	83	85	90	95	95	24	00	16
	Total	290	272	284	313	352	372	381	86	00	74
	Avg.	72	68	71	78	88	93	95	22	00	18
601 Timber F.L.I.	Greentop L.O.	26	20	14	16	16	60	99	(06)	00	03
	Pow Wow	20	12	13	08	33	33	99	06	00	02
	Burnt Peak L.O.	17	12	12	14	23	31	99	03	00	02
	Arroyo Grande	16	14	16	16	26	28	99	05	00	02
	Total	79	58	55	54	98	152	396	20	00	09
	Avg.	20	14	14	14	24	38	99	05	00	02
601 Brush B.I.	Greentop L.O.	20	18	12	11	11	38	99	(12)	01	04
	Pow Wow	17	14	10	08	22	25	99	12	02	05
	Burnt Peak L.O.	15	14	10	10	18	22	99	11	01	06
	Arroyo Grande	15	15	13	11	16	17	69	08	02	05
	Total	67	61	45	40	67	102	366	43	06	20
	Avg.	17	15	11	10	17	26	92	11	02	05

Estimated entry

Obtained from FLI table using estimated BI and II

Estimated entry

PSW, 4400-183 (R-5, 5100-183)

To compile burning indexes

Those stations with use-code 3 in the list of Fire Danger Rating Areas and Stations, found in Chapter 7 of Part I, will be responsible for compiling Fire Danger Indexes. If your station is assigned this duty, obtain from Headquarters a list of Rating Areas by number and Fuel Type for which you will be compiling. A work form (PSW, 4400-183; R-5, 5100-183) is available for compiling Fire Weather Station Indexes and obtaining FDR Area averages. On this form enter the Rating Area number, the Index name (Burning, Ignition or Fire Load) and the Fuel Type. Then list the names of the Fire Weather Stations in the Area. Refer to the list of Fire Danger Rating Areas mentioned above for Stations assigned to any particular Area. In the line beneath the last Station enter "Total," and in the following line enter "Average." Repeat for each Index and for each Area. See example on opposite page.

Each day write in the Fire Danger Indexes from each Station. (For estimating missing station data see the following page.) Total these for each Index and divide by the number of Stations. This will be the day's average of each Index for the Area. These averages should then be entered to the nearest whole number on the Summary Form for Fire Danger Indexes (PSW, 4400-193; R-5, 5100-193). Enter the Area Average Burning Indexes in Columns 1, 2, or 3 according to fuel type, the average Ignition Index in Column 7, and the average Fire Load Index in Column 9.

At the end of the decade, total Columns 1, 2, 3, 7, and 9 and enter on the Total line. Divide the total of each column by the number of days of recorded data and enter this average on the proper line. The total of Column 9 will always be divided by the number of days in the decade, since the Fire Load Index must be estimated if observations are missing. Enter all averages to the nearest whole number. A sample Summary Form appears on page 6 of this chapter.

Item	Deer Ck. Aug. 9	Deer Ck. Aug. 10	Bear Mt. Aug. 9	Bear Mt. Aug. 10	Quail Hill Aug. 9	Quail Hill Aug. 10
Burning Index	32	38	26	30	41	missing
Difference	+6		+4			
Percent difference	+19		+15			
Average percent difference			+17			
Estimated change for Quail Hill = +.17x41=6.97, or 7						
Estimated Burning Index for Quail Hill = 41 + 7 = 48						

To estimate missing indexes

The success of the Fire Danger Rating System depends entirely on the completeness and accuracy of the fuel and weather measurements made and recorded by each of the Fire Weather Stations.

When one or more stations within a Rating Area does not obtain and report all the data on the Fire Weather and Danger Index Record, an estimate must be made of the missing Indexes for use in compiling and predicting. This should be done for the missing day on the basis of the trend shown by the Indexes of the other reporting stations within the Rating Area. One example of estimating Indexes using trend is shown on the opposite page.

On August 10, Rating Area 370 was covered by reports from Deer Ck. and Bear Mt., but due to an emergency situation Quail Hill could not be manned and no report was available. When the Burning Indexes were written in on the compiling form, Deer Ck. and Bear Mt. showed differences from the previous day's Indexes of +6 and +4. Converting these figures to percent differences makes them +19 and +15--or an average percent difference of +17. Multiplying the August 9 Burning Index for Quail Hill by the average percent difference gives 6.97 (rounded to 7). This increase added to the previous day's (August 9) Burning Index of 41 gives an estimated Index of 48 for the missing station.

Station Ignition Indexes must be estimated in the same way. The estimated Station Fire Load Index should be obtained from the Fire Load Index table using the estimated Burning Index and the estimated Ignition Index.

If the Indexes from all Stations within an FDR Area are missing, estimate only the Area Average Fire Load Index for the day. To do this consider the trend in the average Fire Load Indexes in adjoining FDR Areas.

Encircle all entries of estimated Indexes on the Summary Form.

SUMMARY FORM FOR FIRE DANGER INDEXES

Forest, ~~County, or Park~~ Highland Month Sept. Year 19 61 FDR Area No 601

	Date	Area Average			Predicted							Carry over 1803					
		Grass Burning Index	Brush Burning Index	Timber Burning Index	Grass Burning Index	Brush Burning Index	Timber Burning Index	Area Average Ignition Index	Predicted Ignition Index	Area Average Fire Load Index for G, B, or (T) fuel type	Predicted Fire Load Index	Fire Weather Severity	Decade Normal Fire Load Index	Departure from Normal Fire Load Index			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	01		17	17		16	16	72	69	20	18	1823					
	02		15	15		15	15	68	71	14	20	1837					
	03		11	12		14	13	71	81	14	16	1851					
	04		10	10		09	10	78	81	14	16	1865					
	05		17	16		18	15	88	87	24	24	1889					
	06		26	24		25	22	93	90	38	33	1927					
	07		92	90		76	74	95	95	99	99	2026					
	08		11	16		06	08	22	13	05	02	2031					
	09		02	02		02	02	00	00	00	00	2031					
	10		05	06		04	05	18	24	02	03	2033					
	Tot.		206	208				605		230							
	Avg.		21	21				60		23			27	-4			
	11					11	12		62		12						
	12																
	13																
2	14																
	15																
	16																
	17																
	18																
	19																
	20																
	Tot.																
	Avg.																
	21																
	22																
	23																
	24																
	25																
3	26																
	27																
	28																
	29																
	30																
	31																
	Tot.																
	Avg.																

Each day add area average FLI (Col. 9) to previous day's Fire Weather Severity

Area averages copied from PSW, 4400-183

Predictions made on one day are entered on line for next day

Decade normal (Col. 12) is subtracted from decade average (Col. 9). 23-27 = -4

Federal stations send original to Pacific Southwest Forest & Range Expt. Sta., Berkeley. Make additional copies as required. CDF and contract county stations forward original to Division of Forestry Headquarters, Sacramento.

PSW, 4400-193 (R-5, 5100-193)

INSTRUCTIONS

Complete all entries at the top of the form. Use one form for each fire danger rating area.

Column Number

1, 2, 3. AREA AVERAGE BURNING INDEX. Enter the average grass, brush, and/or timber burning index for the area to the nearest whole number.

4, 5, 6. PREDICTED BURNING INDEX. Enter tomorrow's predicted grass, brush, and/or timber burning index for the area opposite tomorrow's date.

7. AREA AVERAGE IGNITION INDEX. Enter the average ignition index for the area to the nearest whole number.

8. PREDICTED IGNITION INDEX. Enter tomorrow's predicted ignition index for the area in this column opposite tomorrow's date.

9. AREA AVERAGE FIRE LOAD INDEX. At the head of this column encircle G, B, or T to indicate the fuel type for which the fire load index is computed in this area. Enter the average fire load index for the area to the nearest whole number. If the indexes from all stations in the FDR area are missing, the area average fire load index must be estimated, entered, and encircled.

10. PREDICTED FIRE LOAD INDEX. Enter tomorrow's predicted fire load index for the area in this column opposite tomorrow's date.

11. FIRE WEATHER SEVERITY. Fire weather severity is the accumulation of fire load indexes since January 1. See FDR Handbook for instructions on how to obtain the initial value which will have accumulated from January 1 to the beginning of the observation season. Each day add the area average fire load index from column 9 to the previous day's entry in column 11 and enter in column 11. At the beginning of a new month carry over the value from the last day of the previous month by entering it in the box titled "carry-over" at the top of column 11.

Decade Averages. At the end of each decade, total columns 1, 2, 3, 7, and 9 and enter on the proper line. Divide the total of each column by the number of days of recorded data and enter the average on the proper line. The total of column 9 will always be divided by the number of days in the decade, since the fire load index must be estimated if observations are missing. Enter all averages to the nearest whole number.

12. DECADE NORMAL FIRE LOAD INDEX. These normals have been supplied for each FDR area. Enter the normal for the appropriate decade in column 12 on the line labeled "Avg."

13. DEPARTURE FROM NORMAL FIRE LOAD INDEX. At the end of each decade subtract the decade normal fire load index in column 12 from the decade average in column 9 and enter the difference in column 13. Include the proper sign, plus or minus. If decade normals have not been provided for months before or after the normal fire season, omit this computation for those months.

14, 15, 16. Blank columns for possible future use.

193 (back)

To determine Fire Weather Severity

Fire Weather Severity accumulates for the entire year, starting anew each year on January 1. Certain Fire Weather Stations have been designated as yearlong Stations. If the FDR Area for which you compile Indexes contains one or more of these Stations, determine the Fire Weather Severity by starting on January 1 with the January 1 Fire Load Index from this station (or the average if the Area contains more than one yearlong Station). Enter this in Column 11 of the Summary Form. On January 2 add the January 2 Fire Load Index and enter the sum in Column 11. Continue this accumulation each day throughout the year. After the fire season begins and other Stations in the Area have started observations, the average Fire Load Index for the Area will be accumulated daily.

At the beginning of each new month enter the accumulated Fire Weather Severity from the last day of the previous month in the box at the top of Column 11 titled "Carry-over."

If the Area for which you compile Indexes does not contain any yearlong Stations it will be necessary to obtain your initial Fire Weather Severity for the first day of your observation season from a nearby Area. Headquarters will relay this figure to you. Each day after that add the Area average Fire Load Index from Column 9 to the previous day's entry in Column 11.

To determine departure from normal Fire Load Index

You will be provided with Decade Normal Fire Load Indexes for the FDR Area(s) for which you do the compiling. Enter the figure for the appropriate decade in the box in Column 12 of the Summary Form.

At the end of each decade subtract the Decade Normal Fire Load Index in Column 12 from the decade average of the Fire Load Indexes in Column 9. This difference is the Departure from Normal Fire Load Index. Enter it in Column 13 and be sure to include the proper sign--a plus sign if the decade was above normal and a minus sign if the decade was below normal.

An example of a Summary Form with the Fire Weather Severity and Departure from Normal Fire Load Index computations is shown on the opposite page.

To predict Burning, Ignition, and Fire Load Indexes

Plot the day's average Burning, Ignition, and FireLoad Indexes on the Fire Danger Index graph sheet. If Burning Indexes for more than one fuel type are computed for the Area, plot only the one which is used to compute the Area average Fire Load Index. The Burning, Ignition and Fire Load Indexes may be plotted in different colors on the same sheet.

Place a straight edge through all the plotted Burning Index values for recent days that show a general trend in the same direction--upward, downward, or horizontal. Project this straight line trend one day in advance to establish a tentative estimate of the expected Burning Index for that day.

Remember that it generally takes more than two points to establish a trend. Minor changes in direction take place almost daily, but usually come back into line in a day or two. The occurrence of rain, dry north winds, and other extreme weather changes do, of course, upset the trend immediately.

Study the fire weather forcast. Determine how much change is predicted for the different weather elements. Use your judgment as to how these changes will affect the Burning Index in your Area. Attempting to compute an actual Burning Index from the forecast values of the weather elements is usually too involved and time-consuming to be practical. Then too, the forecasts are usually too general for this. They should, however, indicate whether the trend will continue or whether it may be expected to change direction.

Modify or adjust your projected trend point whenever your interpretation of the forecast indicates the probability of a change in the trend. Make any other adjustments in this predicted Burning Index which your judgment tells you. Your study of past trends of this season and last, information that lookouts can give you, and all other indications of change should be considered in making your decision.

When you have arrived at a prediction for the Burning Index in your Area, enter it in Column 4, 5, or 6, whichever is appropriate, of the Summary Form 193.

Follow the some procedure to arrive at a predicted Ignition Index for your Area. Enter it in Column 8 of the Summary Form 193.

Determine a predicted Fire Load Index for your Area by entering the Fire Load Index Table with the predicted Burning Index and the predicted Ignition Index. Enter it in Column 10 of the Summary Form 193.

Remember that the fire weather forecasters have large forecast districts and it is, therefore, practically impossible for them to consider all local conditions and make forecasts of specific values or changes for individual stations. You will need to supplement their relatively broad area forecasts with your knowledge of local weather patterns obtained through study. There are several types of local studies that may be helpful, and a few generalizations about fire weather elements that may be used. The following items may be of value in developing methods of index prediction.

You may wish to consider the relative persistence for each of the basic fire weather elements. Generally the fuel stick moisture content will show the least day to day change under average summer conditions. The next most stable may be the temperature. In some areas of the State there is a strong tendency for the temperature to follow cycles. This is particularly true in areas that are subject to invasions of marine air. Daily temperatures may increase for several days, then decrease for several days, and repeat this cycle several times. Relative humidity is less stable than temperature because it is dependent upon both the temperature and the absolute moisture content of the air. Local influences that modify temperature and absolute moisture content will also modify the relative humidity. Changes in humidity may be quite abrupt when a different air mass moves into an area. When marine air moves in, the humidity rises rapidly and then lowers gradually day after day as the air becomes modified. The onset of north or east winds may bring dry, subsiding air into an area and cause a sharp drop in humidity. On succeeding days the humidity may climb back to higher values as the winds decrease and the air mass picks up moisture. In a few areas wind may be rather constant with only minor day to day fluctuations. Most areas, however, have winds that vary considerably in speed and there the wind may be the most variable of the weather elements. Just how these variations are related to the broader weather pattern can be determined only through local study.

Minor day-to-day variations of burning index during a trend may well be nearly incapable of prediction and may not warrant detailed attention. The important cases are those in which the trend makes a sudden change in direction. A special effort should be made to catch these changes in the prediction. To detect these changes you must rely heavily on the fire weather forcast. Generally, if the fire weather forecast does not catch the change, the index prediction will also fail.

Even if the index prediction will fail, all is not necessarily lost. As soon as it becomes apparent that a prediction will be in error, a revised prediction should be made. This should be based on a revised fire weather forecast or on current observations. If a revised fire weather forecast is not received, effort should be made to contact the fire weather forecaster and discuss revisions.

You should develop your own tools for predicting indexes. Such tools may consist of daily summaries of weather elements from your weather stations, and averages for the area for several years. Studies in which the observed weather elements are compared to the forecasts may reveal the amount of variation that may be expected. These studies may take the form of plots of observed weather element changes against forecast changes. Another study may consist of first recognizing the local weather patterns that exist in an area, and then determining, by daily comparisons, the strength or type of forecast weather needed to override the local patterns.

Chapter 4

FIRE WEATHER STATIONS AND INSTRUMENTS

. . . . how to install them

	Page
PURPOSE OF STANDARDS	1
EQUIPMENT AND SUPPLIES FOR FIRE WEATHER STATIONS	2
Equipment List	2
Materials and Supplies List	2
SUMMARY OF STANDARDS FOR FIRE WEATHER STATIONS	3
DETAILS OF EXPOSURE STANDARDS AND PROCEDURES FOR INSTALLING INSTRUMENTS	5
Location of Fire Weather Station	5
Fire Weather Station Enclosure	5
Location of Equipment within Station Enclosure	5
Instrument Shelter	7
Fan Psychrometer	11
Fuel Moisture Indicator Scale	11
Fuel Moisture Stick	13
Litter Bed for Fuel Moisture Stick	13
Rain Gage	13
Anemometer	15
Anemometer Electrical Circuit	15
Anemometer Correction Factors	17
ANEMOMETER LOCATION AND HEIGHT DETERMINATION	19
Examples of Anemometer Height Corrections	23

FIRE WEATHER STATIONS AND INSTRUMENTS

....how to install them

This pamphlet lists all the equipment and supplies necessary for the operation of Fire Weather Stations. It also explains the rules or standards for locating fire weather stations, the standards for exposing the fire weather instruments, and instructions for maintaining them.

PURPOSE OF STANDARDS

The primary purpose of the standards is to insure uniformity between fire weather stations throughout California so that fire weather observations will represent actual differences in the burning index factors measured. Without uniform standards, the observations may represent merely differences in the way instruments are exposed or in the way observations are made. A secondary purpose is to make the standards known to the field officers so that they may suggest changes in station layouts whenever changes in vegetation growth, new construction or other factors occur that may significantly affect the observations.

Weather statistics from individual stations are used state-wide, and averages of the measured burning index factors (temperature, relative humidity, fuel stick moisture and wind speed) have been computed over periods of many years. Changes in individual station location or their instrument exposures might affect these long-term averages and therefore should <u>not</u> be made without concurrence by headquarters.

(REVISED 3-1-68)

EQUPMENT AND SUPPLIES

FOR FIRE WEATHER STATIONS

Equipment List

1 Instrument shelter with support
1 Fan psychrometer
1 Fuel moisture indicator scale
1 100-gram test weight for scale
1 Set 1/2" fuel moisture indicator sticks
2 wire supports for 1/2" fuel moisture sticks
1 Anemometer (and support)
1 or 2 No. 6 dry cell batteries (1-1/2 volt, telephone type or 45 volt radio battery)
1 Reset-type wind counter
1 Rain gage
1 Rain gage stand
1 Rain gage measuring stick

Materials and Supplies List

1 Wildland Fire Danger Rating Handbook
24 Fire weather and Burning Index Records--PSW&RES Form 173
1 Can anemometer oil or typewriter oil
Psychrometer wicking, small size
Notebook or scratch pad and pencils
Paper, clip, or clean glove for handling fuel moisture sticks

SUMMARY OF STANDARDS FOR FIRE WEATHER STATIONS

Location of Fire Weather Station. --Site selected for fire weather station should be as representative as possible of the area being rated. Locate the station to windward side of, or if possible entirely away from, lawns, irrigated pastures, graveled drives, paved areas, and bodies of water. Provide at least 20-foot clearance from buildings, trees, and large shrubs. Situate in full sun May 1 - October 31 from 0700 to 1700 PST. (Steep topography may limit full attainment of this standard at some locations.)

Fire Weather Station Enclosure. --The area should be at least 16 feet square and enclosed by a fence about 4 feet high made of a sturdy woven or mesh wire. If a higher fence or a more solid fence has to be used, the enclosure should be proportionately larger.

Instrument Shelter. --Shelter should be painted white inside and outside. Floor of shelter should be level and 48 inches above ground. Door must face north and be provided with hasp or lock.

Fan Psychrometer. --Fasten base securely with screws to floor of shelter on left hand side, near the front. Provide wet bulb thermometer with wicking of standard muslin tubing, cut off to extend about 1½-inch beyond tip of thermometer. It should not extend into water in receptable. Provide water receptacle with a stopper to keep dust out. Distilled water should be used at stations where domestic water contains alkali.

Fuel Moisture Indicator Scale. --Mount scale rigidly on supporting brackets in instrument shelter. Properly level and space the scale to permit fuel-moisture stick to swing freely over entire range of the scale. Scale must read 0 when 100-gram test weight is suspended on balance arm.

Fuel Moisture Indicator Stick. --New stick should be installed at the beginning of each season. Support stick horizontally on wire brackets 10 inches above level bed of litter. It must be kept clean. Orient stick north and south with hook end north and keep same side up throughout the season.

Litter Bed for Fuel Moisture Stick. --Locate litter bed south of the instrument shelter to prevent being shaded by the shelter. (Shaded stick will have higher moisture content than stick in sun.) Litter should be 2-inches deep, placed in a frame 3-feet square and set flush with the ground. Litter can be any of the predominant ground litters of the area such as pine needles, oak leaves, dead grass, etc. Keep litter bed free of green vegetation, except that during winter months, yearlong stations may have green grass in fuel bed (clipped at the top of the fuel bed frame so as not to be more than 2" in height) in keeping with other green vegetation in the surrounding area.

Rain Gage. --Rim of funnel should be level and 3 feet above ground. The distance between gage and any obstruction should be equal to height of obstruction above top of gage. Keep gage clean, free of leaves, insects, and debris. There should be no leaks or dents in funnel or tube.

Anemometer. --Mount 20 feet above open, level ground. Spindle must be vertical. If any obstruction to wind might interfere with anemometer, the anemometer should be placed at a distance from obstruction equal to at least 7 times height of the obstruction. If placed closer, height of the anemometer must be increased. See page 21 for anemometer height correction factor.

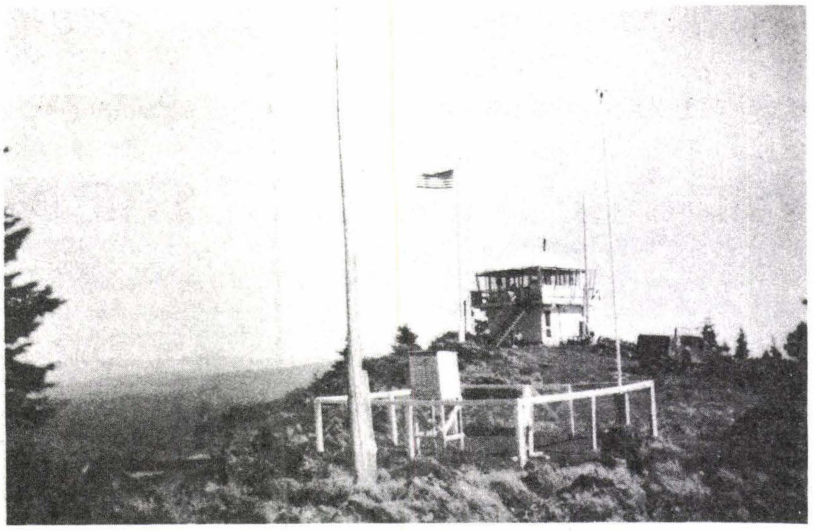


Figure 1.--A STANDARD FIRE WEATHER STATION

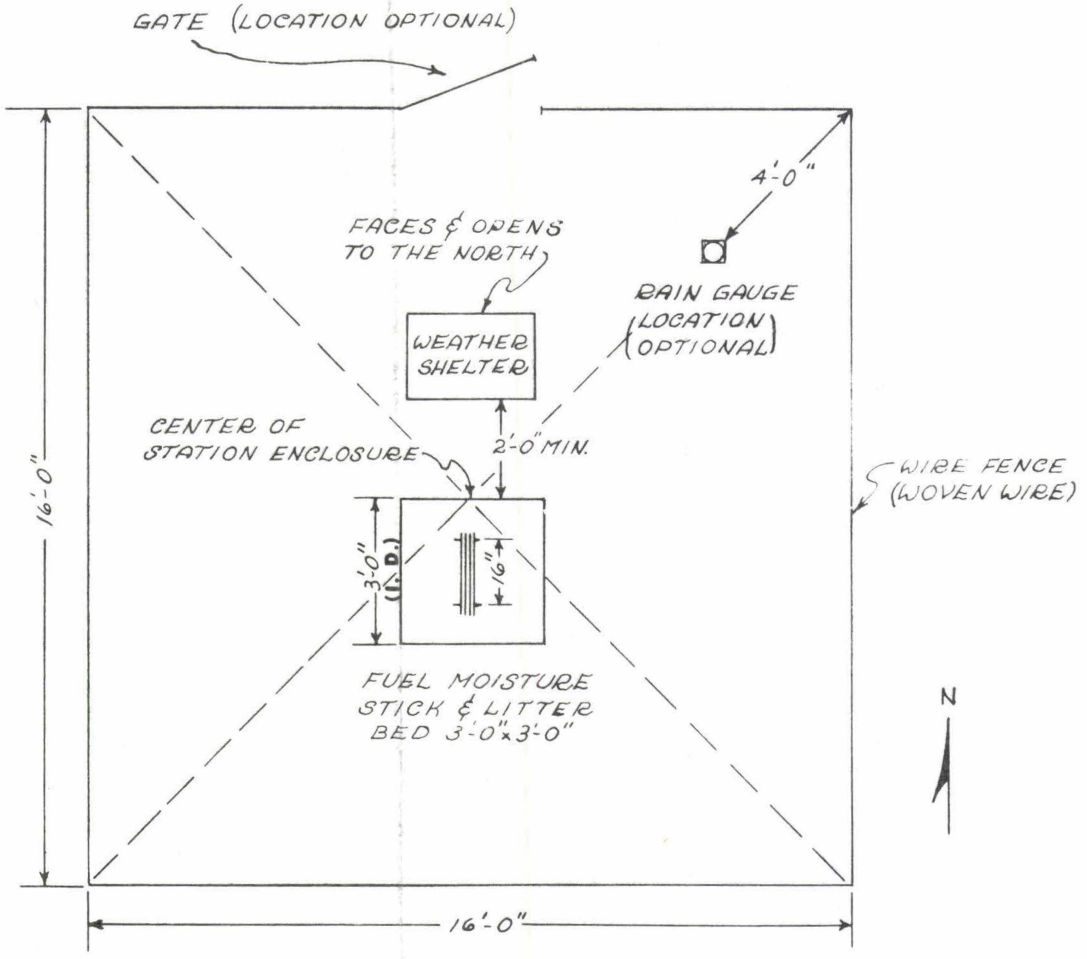


Figure 2.--LOCATION OF EQUIPMENT IN A STANDARD FIRE WEATHER STATION

(Revised 3/1/68)

DETAILS OF EXPOSURE STANDARDS AND PROCEDURES FOR INSTALLING INSTRUMENTS

Location of Fire Weather Station

The site selected for the location of the Fire Weather Station should be as nearly representative as possible of the general area in which the FW Station is located. Strictly local effects should be eliminated as much as possible. The station should not be near bodies of water, lawns, gardens or irrigated pastures, roads, graveled walks or paved areas. If this cannot be avoided, the station should be located to the windward side (prevailing wind) of these disturbing elements. The FW Station should be so located that the shelter is at least 20 feet from any buildings, shrubs, trees or other obstructions, so that it is completely exposed to all winds where possible, or at least to the prevailing winds. It should be in full sun during the period between 0700 and 1700 Pacific Standard Time, at least during July, August, and September. (Steep topography may limit full attainment of this standard at some stations in which case the location selected should give full exposure to the sun for the greatest number of hours possible.) The station should not be located in a gully or pocket, nor on a hummock or ridge if it can be avoided; however, if one or the other must be used the ridge is preferred.

Fire Weather Station Enclosure

To prevent damage by animals or by careless people, the instrument shelter and other equip ment should be enclosed by a fence about four feet high and enclosing an area at least 16 feet square. The fence should cast a minimum amount of shade and should preferably be made of a sturdy woven wire or mesh wire. Wooden picket fences should not be used. The gate in the fence can be placed where it will be most convenient, but since the weather shelter always faces north, it may be more convenient to have the gate on the north side. The inside of the station enclosure should be free of tall growing vegitation, including trees, shrubs, weeds and dry grass. Native perennial grass nay be left to grow in the enclosure, p rovided it is kept clipped or mowed. It should not be watered nor should lawn be planted in the enclosure. Graveled paths may be used in the enclosure. The fence posts and gate may be painted or left rustic in keeping with the general station plan. A fence maybe optional if the station is in an already fenced stationyard.

Location of Equipment w ithin Station Enclosure

The instrument shelter and other equipment are located within the station enclosure to give the best maximum exposure to sun and wind with the least interference from outside influences. A diagram of the standard station layout is shown in Figure 2.

(Revised 3/1/68)

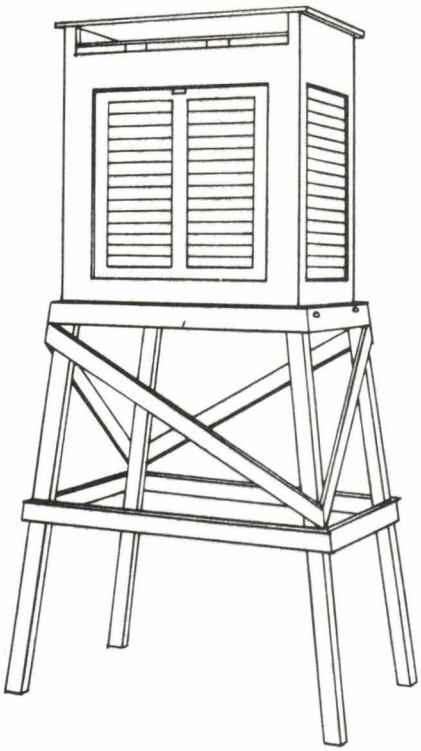


Figure 3. STANDARD SHELTER, WEATHER BUREAU TYPE

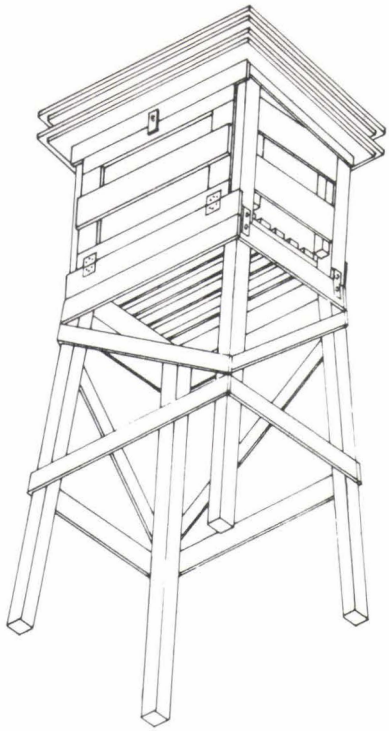


Figure 4. STANDARD SHELTER, U. S. FOREST SERVICE, R-5 TYPE

SUGGESTED METHODS FOR ERECTING THE WEATHER SHELTER SUPPORT

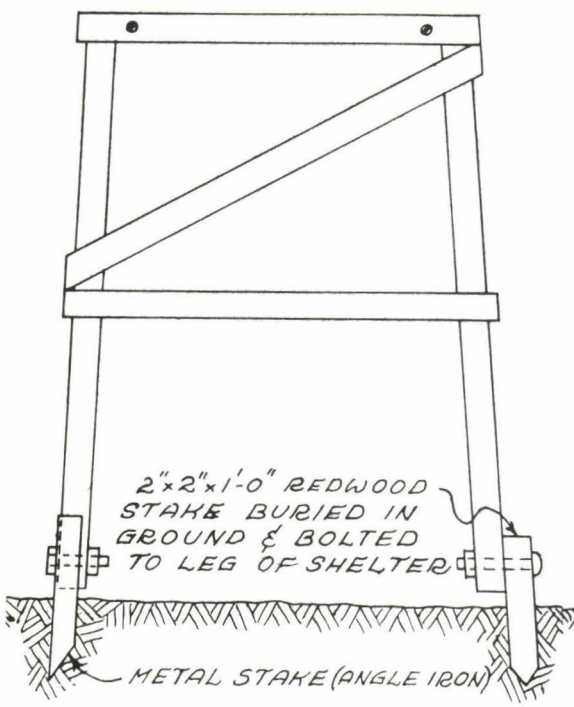


Figure 5. LEGS FASTENED TO METAL OR WOOD STAKES

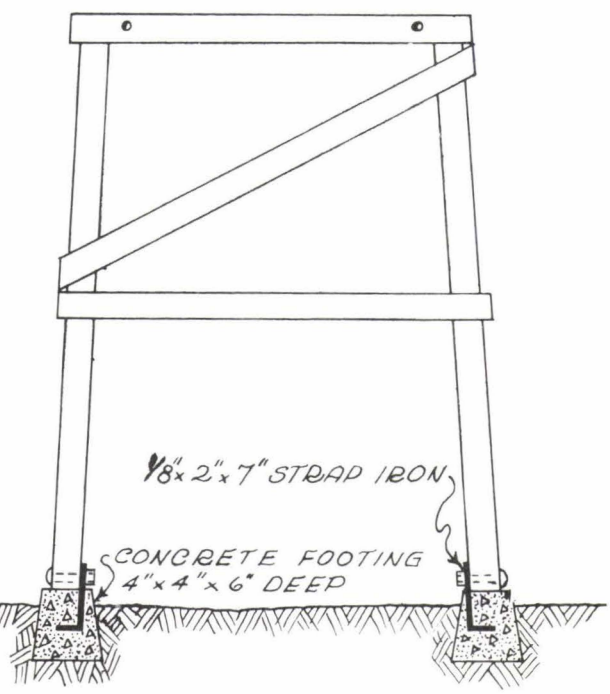


Figure 6. LEGS FASTENED TO CONCRETE FOOTINGS

Instrument Shelter

The instrument shelter should be placed about two feet north of the center of the station enclosure. It should be erected so the door faces north. The door should be provided with a lock or hasp to keep it closed. The floor of the shelter should be level and 48 inches above the ground. The support for the shelter should be firmly erected and the shelter fastened to the support with screws so that it cannot be upset or blown over (see Figs. 5 and 6). (Use screws rather than nails to prevent splitting the wood when the shelter is removed and stored during the winter.)

The support itself can be made solid by bolting the legs to redwood stakes or metal stakes set into holes previously dug in the ground. Concrete footings can also be used with some suitable arrangement for fastening the legs of the support to the footings. (See Figs. 5 and 6 for suggested methods of erecting the shelter support.) The legs of the shelter support are just 48" long, which places the shelter at the proper 48" height if the legs are properly fastened to stakes or concrete footings. The support legs themselves should not be sunk in the ground since this places the shelter below the standard height and eventually causes the legs to rot.

The shelter should be painted exterior gloss white both inside and out.

Specifications for the construction of the instrument shelter and support can be obtained from the U. S. Department of Commerce, Weather Bureau, Washington 25, D. C. These plans are for the Standard Weather Bureau Shelter, also called the "Cotton Region" type shelter, Figure 3. The plans are entitled "Specifications for Small Standard Instrument Shelter," Specification No. 450.0615, revised July 1, 1952.

The U. S. Forest Service, Region 5 Standard Instrument Shelter is much simpler and cheaper to construct. Plans can be obtained from the Division of Fire Control, U. S. Forest Service, 630 Sansome Street, San Francisco, California.

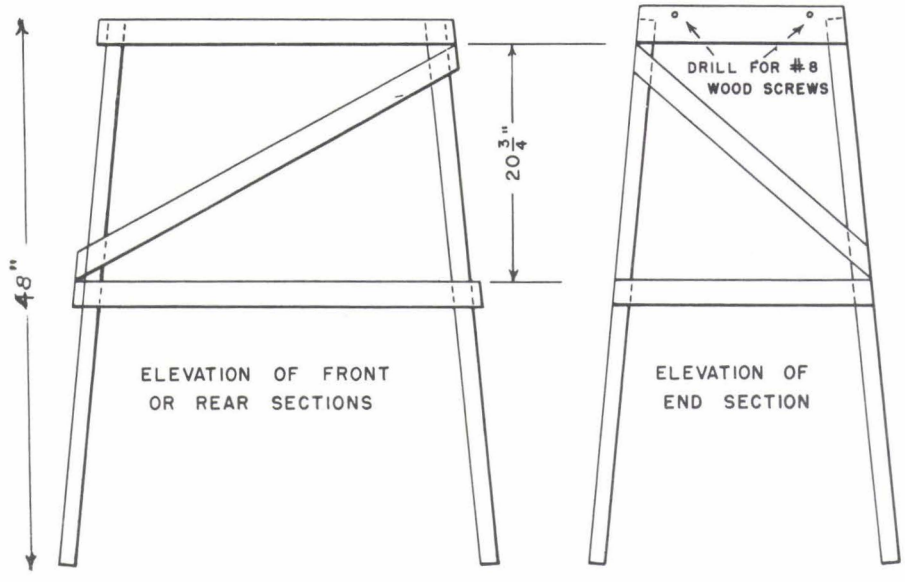
Due to the high cost of a ready-made shelter support plus high shipping costs, it is probably more economical to build the support at the destination. Plans for the U. S. Weather Bureau standard support for instrument shelter are shown in Figure 7. Plans for the U. S. Forest Service standard support for instrument shelter are shown in Figure 8.

Location of Instruments in the Shelter

The specific location for instruments in the shelter depends on whether or not the station is equipped with a hygrothermograph and maximum and minimum thermometers. The standard arrangements of instruments are shown in Figures 9 and 10.

U. S. WEATHER BUREAU

STANDARD SUPPORT
for
INSTRUMENT SHELTER



HOW TO CUT ANGLES:	
ALL GIRTS,	$1\frac{3}{16}$" TO 1 FT.
LONG BRACES, LOWER END,	8" TO 1 FT.
LONG BRACES, UPPER END,	$4\frac{7}{8}$" TO 1 FT.
SHORT BRACES, LOWER END	12" TO 1 FT.
SHORT BRACES, UPPER END	8" TO 1 FT.

STOCK LIST DIMENSIONS GIVEN ARE OF LONGEST SIDE:	
4 LEGS,	$2\frac{1}{2}$" X $1\frac{3}{4}$" X 48"
2 LOWER GIRTS,	$\frac{7}{8}$" X $2\frac{1}{4}$" X $37\frac{3}{4}$"
2 LOWER GIRTS,	$\frac{7}{8}$" X $2\frac{1}{4}$" X 24"
2 UPPER GIRTS,	$\frac{7}{8}$" X $2\frac{1}{4}$" X 33"
2 UPPER GIRTS,	$\frac{7}{8}$" X $3\frac{1}{4}$" X $19\frac{1}{2}$"
2 LONG BRACES,	$\frac{7}{8}$" X $2\frac{1}{4}$" X $40\frac{3}{4}$"
2 SHORT BRACES,	$\frac{7}{8}$" X $2\frac{1}{4}$" X 30"

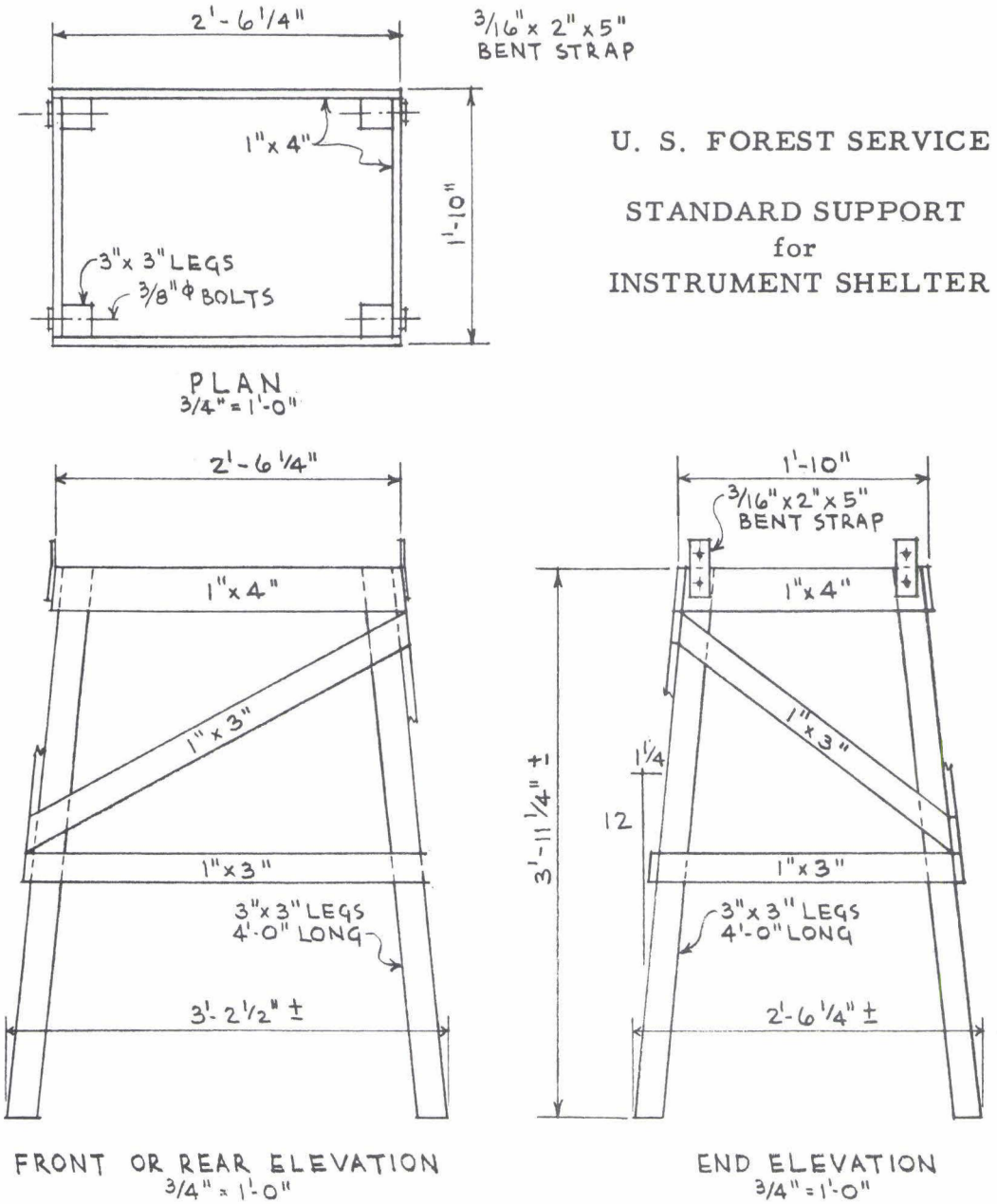
U. S. WEATHER BUREAU,

INSTRUMENT DIVISION

DETAILS OF SUPPORT FOR SMALL
INSTRUMENT SHELTER

450.0306/a JUNE, 1951

Figure 7. PLANS FOR U. S. WEATHER BUREAU STANDARD SUPPORT FOR INSTRUMENT SHELTER



MATERIAL LIST

LEGS	3" x 3"	S 4 S	2 PCS.	8'-0"
BRACES	1" x 4"	S 4 S	1 PC.	10'-0"
"	1" x 3"	S 4 S	2 PCS.	12'-0"

BENT STRAPS - SEE DETAIL - 2" x 5" x 3/16" WITH 2 HOLES FOR 3/8" ϕ BOLTS - 4 REQD.
BOLTS WITH NUTS AND WASHERS - GALV. 3/8" x 4" - 4 REQD.
" " " " " " 3/8" x 5" - 4 REQD.
NAILS - GALV. COMMON - 6d - 1/2 LB.
PAINT - 3 COATS - 1/2 GAL.
NOTE: CUT AND PLANE PIECES TO DETAIL. SAND BEFORE PAINTING.

Figure 8. PLANS FOR U.S. FOREST SERVICE STANDARD SUPPORT FOR INSTRUMENT SHELTER

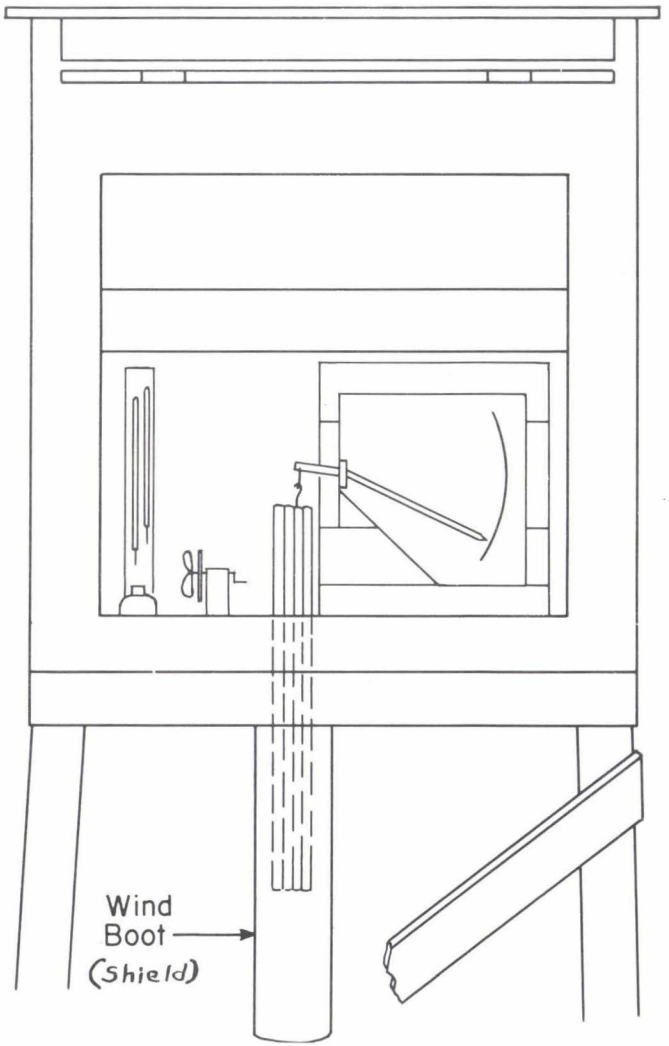


Figure 9. --FIRE WEATHER STATION
Showing Location of Instruments

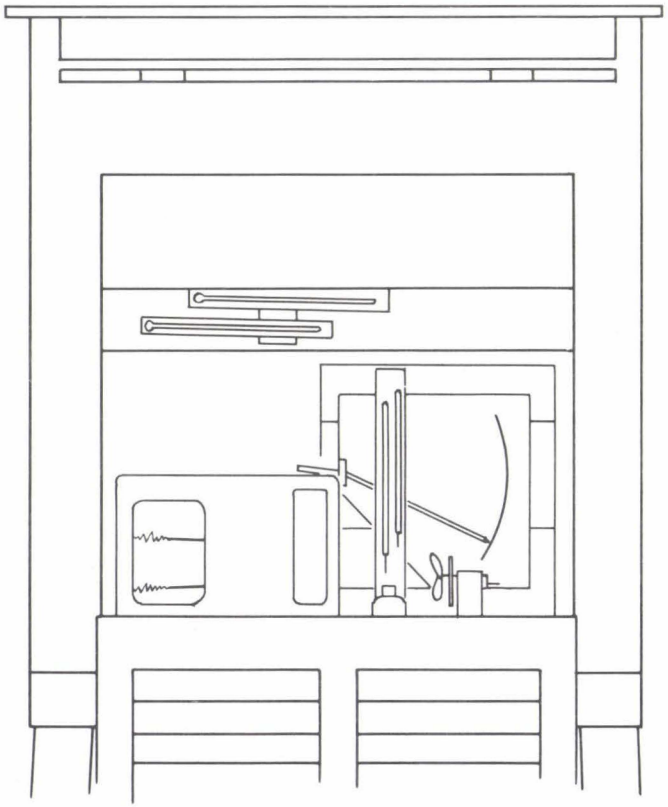


Figure 10. --FIRE WEATHER STATION
Showing Location of Instruments When Equipped with Hygrothermograph and Maximum and Minimum Thermometers

Fan Psychrometer

In a Fire Weather Station the fan psychrometer is located as follows:

The wooden base of the fan psychrometer should be fastened with screws to the floor of the shelter on the left hand side, near the front. (See Figure9.) If a hygrothemograph is used, the fan psychrometer may have to be installed to the right hand side, in front of the fuel moisture scale. (See Figure 10.) The wet bulb thermometer (the lower of the two thermometers) should be provided with a clean wick made from standard muslin tubing cut off so it extends 1 inch beyond the end of the thermometer and covers the entire bulb of the thermometer. The wicking should be dampened only when a humidity reading is to be taken; it should not be allowed to extend into the water receptacle continuously. A continuously wet wick causes dust to adhere and minerals to deposit on the wick and the wet bulb as the water evaporates from it. Distilled water should be used at stations where the domestic water contains alkali. The water receptacle should be proviced with a stopper or cap to keep out dust. A small ink bottle can be used very well for the water receptacle, and a marble can be used as a stopper.

Fuel Moisture Indicator Scale

The scale is mounted inside the shelter on angle brackets furnished with the scale. The angle brackets are fastened to the two horizontal bars on the lower right hand side of the back of the shelter. The scale should be in an exact vertical position to insure that the pointer swings freely without rubbing on the scale plate. After the scale is fastened in place, a hole should be cut in the floor of the shelter just large enough for the fuel moisture stick to pass freely through when it is hung on the loop marked 100.

At stations where it is generally windy, a shield or wind boot such as a stove pipe, fastened to the under side of the shelter floor just below the hole cut for the fuel moisture stick, will help to settle the scale beam pointer when weighing the stick. (See Fig. 9.)

The fuel moisture scale must read zero when the 100-gram weight is suspended on the scale beam on the loop marked 100.

The 400-gram loop should be removed from the scale beam, since this loop is not used.

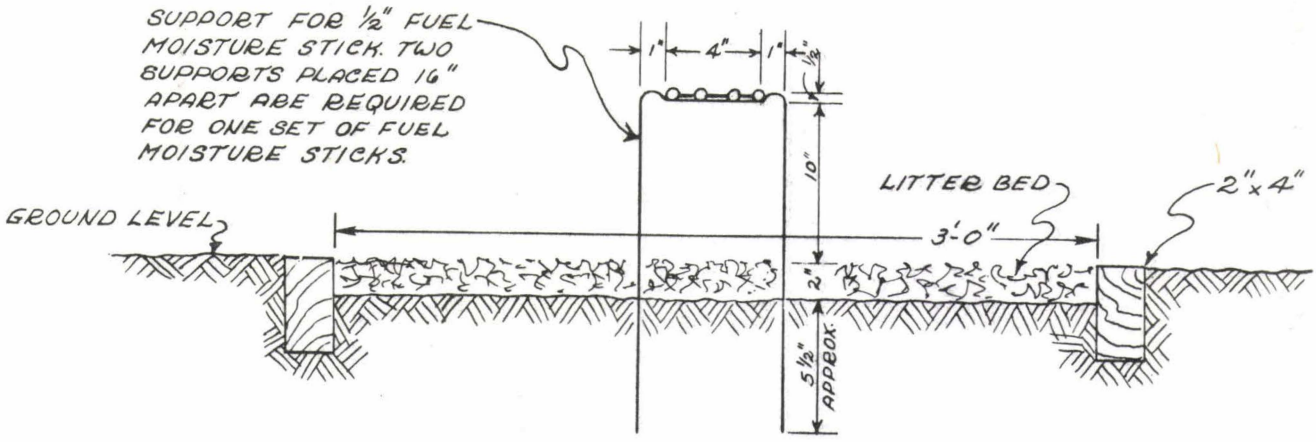


Figure 11. LITTER BED AND FUEL MOISTURE STICK

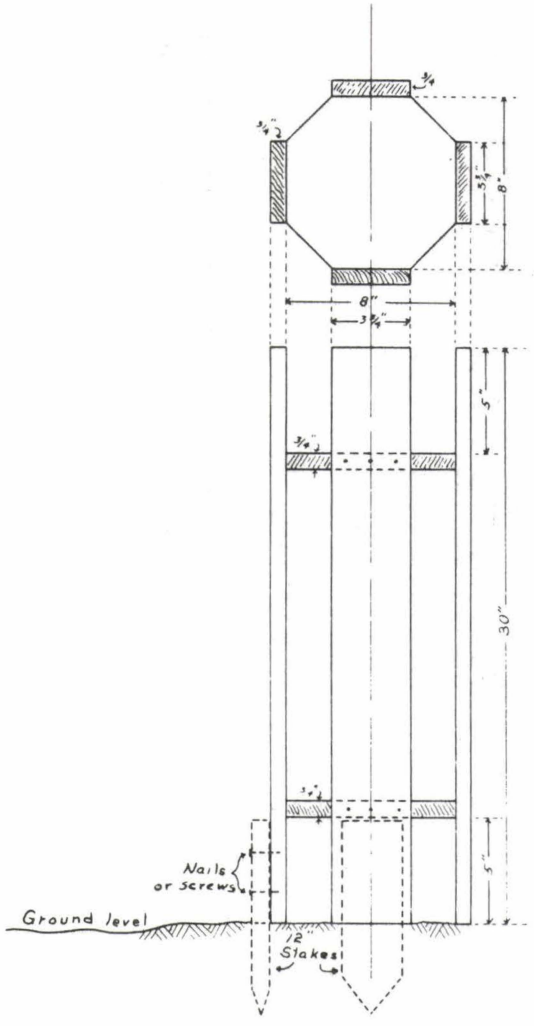


Figure 12. RAIN GAGE STAND FOR U. S. FOREST SERVICE GAGE

(Revised 3/1/68)

Fuel Moisture Indicator Stick

A new fuel moisture indicator stick must be expossed each season. The stick must be kept clean. To insure uniform exposure and uniform drying, the stick should always be exposed in the same position with the same side up. The stick should be supported horizontally on two wire brackets (described in next paragraph, "Litter Bed for Fuel Moisture Stick") so that it is 10 inches above a level bed of litter. It should be oriented north and south with the numbered side up and hook end north.

Litter Bed for Fuel Moisture Stick

The purpose of the litter bed under the fuel moisture stick is to cover the bare ground to maintain uniform surface heat conditions and to prevent mud from spattering on the stick when it rains. The litter bed should be south of the instrument shelter to prevent its being shaded by the shelter. Two inches of litter should be placed in a frame 3 feet I. D. square, which is set flush with the level ground. The frame should be made of 2" x 4" redwood. (See Fig. 11.) The litter used in the bed can be any of the predominent ground litters in the area such as pine needles, oak leaves, dead grass, etc. No green vegetation should be allowed to grow in the litter bed. The brackets on which the stick is supported can be made of two pieces #9 wire about 42 inches long, bent as shown in Figure 11, and placed approximately 16 inches apart at a height of 10 inches above the litter. Avoid placing larger dead fuels such as limbs or pine cones in the litter bed.

Rain Gage

The rain gage must be clean--free of leaves, insects, and debris. It must have no leaks or dents in the tube or funnel.

The rain gage should be set in its stand so that the rim of the gage is level and is 36 inches above ground. Specifications for making the stand for a Forest Service type gage are shown in Figure 12. The stand can be secured in place by driving a 1" x 2" x 12" stake flush against each leg of the stand when held plunb. With the rain gage in place, put a level across the rim of the gage and nail (or preferably set screws) through the stakes and into the stand legs while the stand is held so that the rim of the gage is level. The gage should be located in the NE or NW quarter of the enclosure as shown in the station layout diagram. If there are nearby obstructions, the gage should be so located that a 45-degree vertical angle from the top of the gage clears all obstructions, or in other words, the distance of the rain gage from any obstruction must equal or exceed the height of the obstruction.

The rain gage measuring stick (10 inch stick for Forest Service Type Gage; 24 inch for U. S. Weather Bureau Gage) should be placed on a hook on the right inside corner of the instrument shelter.

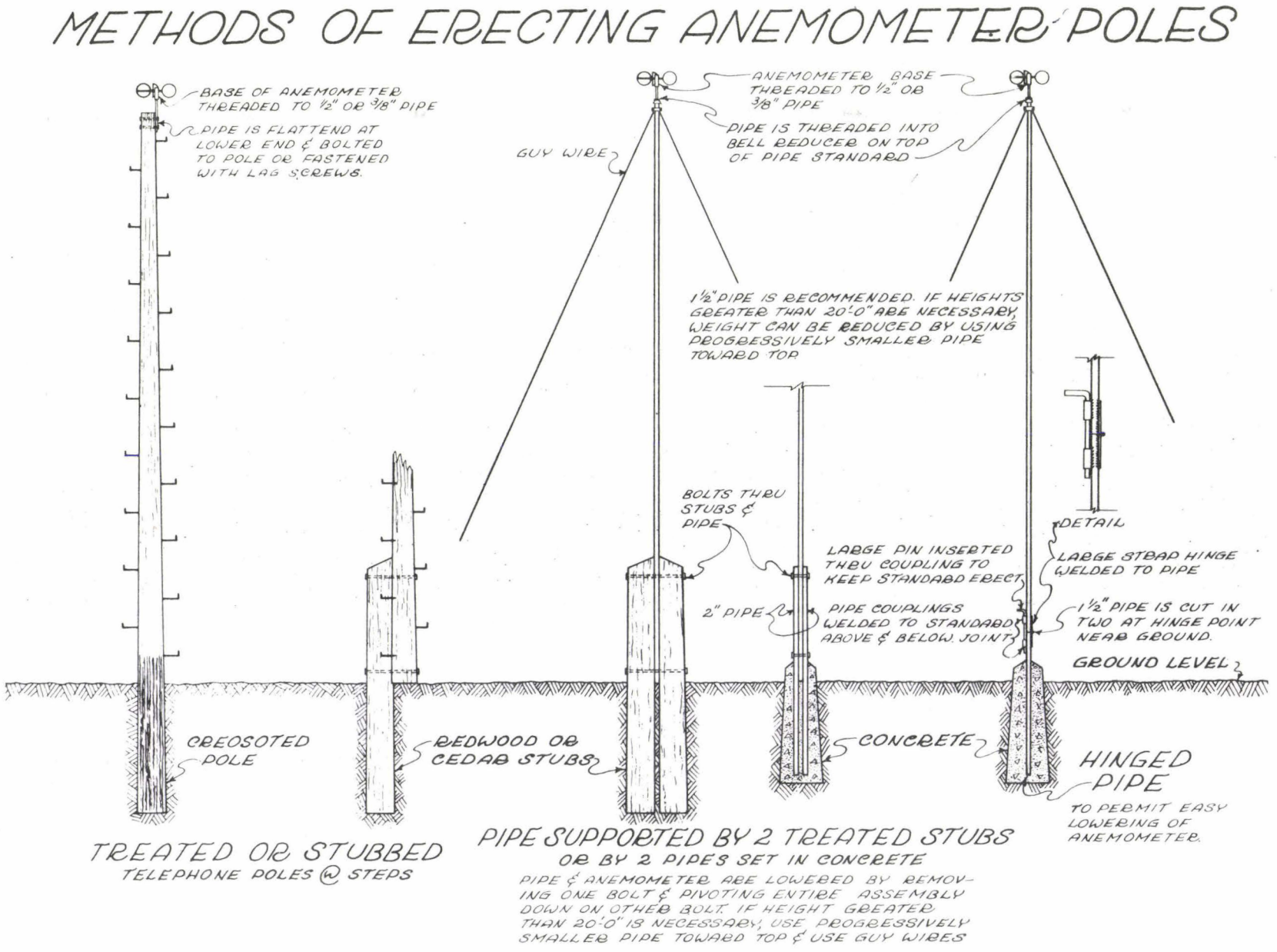

METHODS OF ERECTING ANEMOMETER POLES
BASE OF ANEMOMETER THREADED TO 1/2" OR 3/8" PIPE
PIPE IS FLATTEND AT LOWER END & BOLTED TO POLE OR FASTENED WITH LAG SCREWS.
ANEMOMETER BASE THREADED TO 1/2" OR 3/8" PIPE
PIPE IS THREADED INTO BELL REDUCER ON TOP OF PIPE STANDARD
GUY WIRE
1 1/2" PIPE IS RECOMMENDED. IF HEIGHTS GREATER THAN 20'-0" ARE NECESSARY, WEIGHT CAN BE REDUCED BY USING PROGRESSIVELY SMALLER PIPE TOWARD TOP
BOLTS THRU STUBS & PIPE
LARGE PIN INSERTED THRU COUPLING TO KEEP STANDARD ERECT
2" PIPE
PIPE COUPLINGS WELDED TO STANDARD ABOVE & BELOW JOINT
DETAIL
LARGE STRAP HINGE WELDED TO PIPE
1 1/2" PIPE IS CUT IN TWO AT HINGE POINT NEAR GROUND.
GROUND LEVEL
CREOSOTED POLE
REDWOOD OR CEDAR STUBS
CONCRETE
HINGED PIPE
TO PERMIT EASY LOWERING OF ANEMOMETER.
TREATED OR STUBBED
TELEPHONE POLES @ STEPS
PIPE SUPPORTED BY 2 TREATED STUBS
OR BY 2 PIPES SET IN CONCRETE
PIPE & ANEMOMETER ARE LOWERED BY REMOVING ONE BOLT & PIVOTING ENTIRE ASSEMBLY DOWN ON OTHER BOLT. IF HEIGHT GREATER THAN 20'-0" IS NECESSARY, USE PROGRESSIVELY SMALLER PIPE TOWARD TOP & USE GUY WIRES

Figure 13. METHODS OF ERECTING ANEMOMETER SUPPORTS

Anemometer

The standard anemometer exposure is 20 feet above open, level ground with the spindle of the anemometer in an exactly vertical position. Most anemometers are constructed with a base threaded with 1/2-inch or 3/8-inch pipe threads so they can be mounted on top of a 1/2-inch or 3/8-inch pipe. This pipe can then be attached to a larger pipe and raised to the proper height or the 1/2-inch or 3/8-inch pipe can be flattened at the lower end and bolted to the top of a wooden post with bolts, screws, or lag bolts. Various methods of installing the anemometer at the proper height and yet enabling it to be reached or to be lowered easily for servicing are shown in Figure 13.

Many Fire Weather Stations are located where it is impossible to find an open level location for the anemometer. Anemometers may have to be located where the general topography is rough, in canyon bottoms, on ridge tops, in timbered areas, or in brush covered areas. Each of these situations creates some sort of obstruction to the wind, thus requiring adjustment of the anemometer height or method of exposure in order to secure measurements comparable to those of the standard anemometer exposure. Ways of making this adjustment are illistrated and described under the heading, "Anemometer Location and Height Determination," page 19.

Anemometer Electrical Circuit

Wind speed is expressed in terms of miles per hour. It is generally measured by connecting the terminals of the anemometer with an electrical circuit consisting of dry cells and a counter, and adding the counts as the anemometer revolves. The counter is placed in the anemometer electrical circuit in place of, or in addition to a buzzer. (See Figure 14.) Several models of the counter are now in use and the battery requirements vary. Installation instructions provided with each counter specify the current needed. Where the anemometer is remoted a considerable distance from the counter additional batteries may have to be used to obtain the proper current at the counter.

Wire for the electrical circuit from the anemometer to the weather shelter should be duplex, weatherproof, insulated copper lead-in wire not smaller than 16-gage for short destances. Do not use ordinary emergency duplex wire because of its short life when exposed to the weather. Use larger gage wire (ordinary telephone line wire) for distances greater than 200 or 300 feet, or if a buzzer is used in place of a counter. Use only sufficient No. 6 (1-1/2 volt) dry cells (usually 2 in a series) to operate the buzzer, as too high a voltage may burn the anemometer contact points. If a suitable buzzer is not available, or if preferred by the observer, a light may be subistituted for the buzzer. An ordinary flashlight socket and bulb can be used. Wind speed is then measured by counting the light flashes per minute.

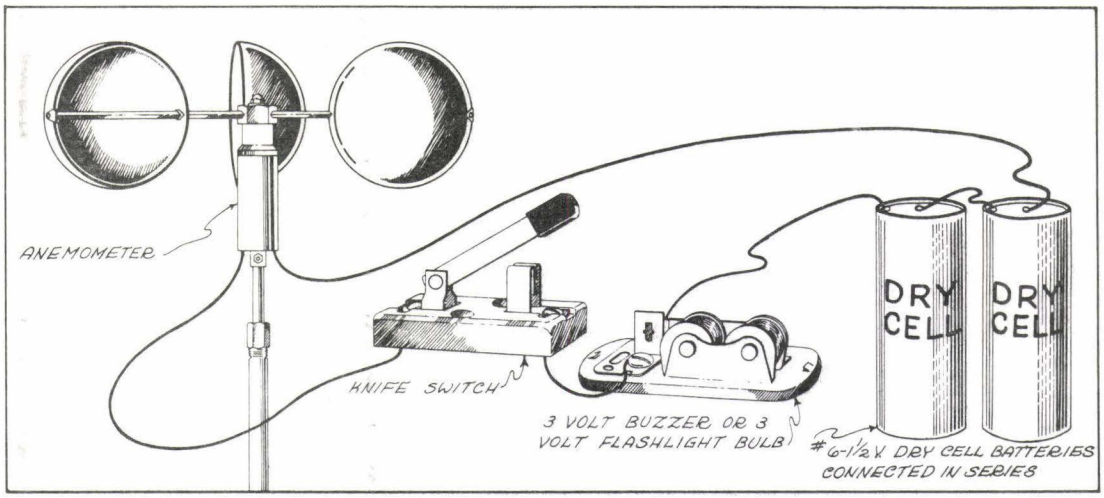
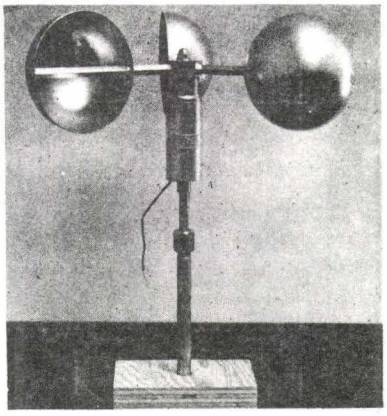
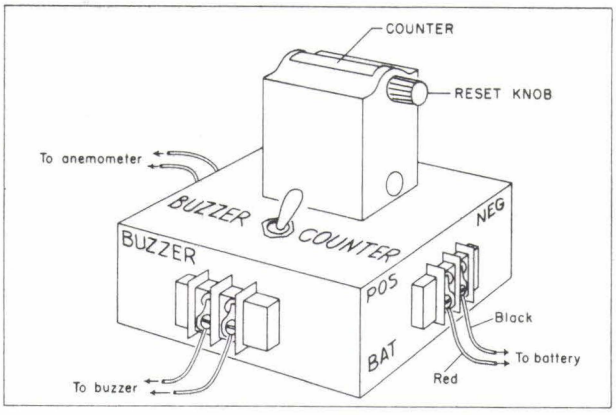


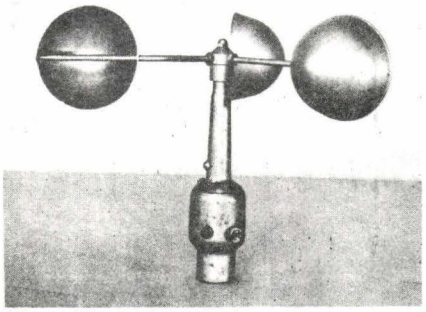
Figure 14. ANEMOMETER ELECTRICAL CIRCUIT



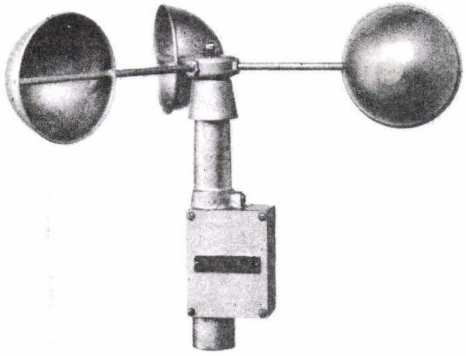
Chisholm (3-cup)
Model 2B-3C



Reset-type wind counter



Dozier (3-cup)



Roger (3-cup)

Figure 15. THE RESET-TYPE WIND COUNTER AND ANEMOMETERS COMMONLY USED AT FIRE-WEATHER STATIONS.

Lightning Protection

Lightning protection must be provided in anemometer installations where (1) an anemometer is not grounded and the lead-in wires are brought to a switch and buzzer inside a building (as a lookout building), or (2) the wires are brought from an anemometer at a considerable distance from the building. In either case lightning could strike the anemometer or the wire and be a hazard to the lookout occupant or the weather observer. If the anemometer is mounted directly to a wooden lookout or mounted on a wooden pole on a tower, the base of the anemometer should be grounded to the lightning system of the lookout by No. 2 copper wire. If the anemometer is mounted in a tall tree, or at a considerable distance from the weather shelter or building so that there is a long circuit of wire, the circuit should be provided with a carbon block type lightning arrester before the wires enter the building or shelter.

Anemometer Correction Factors

Most anemometers are manufactured so that they produce about one buzz or light flash per minute for each mile per hour of wind speed. However, a slight correction to the indicated speed is usually necessary to obtain the true speed. A correction chart for the anemometer in use should be posted beside the buzzer or light. The following table indicates the wind correction factor required by various types of anemometers in use at Fire Weather Stations.

Wind Speed Correction Factors for Various Types of Anemometers in Use at Fire Weather Stations

Make and Model or Type	Wind Correction Factor Required
Friez-3 cup (large)	Add 1 mph to speeds of 1 to 16 mph
Friez-3 cup (small)	Add 1mph to all speeds
Roger-3 cup	No correction chart available.
Chisholm-3cup Model 1938,	Type 2B3C, same as Forester-3 cup
Add 1 mph to speeds of 1 to 10 mph Add 1-1/2 mph to speeds of 10-1/2 to 21-1/2 mph Add 2 mph to speeds of 22mph or over.	

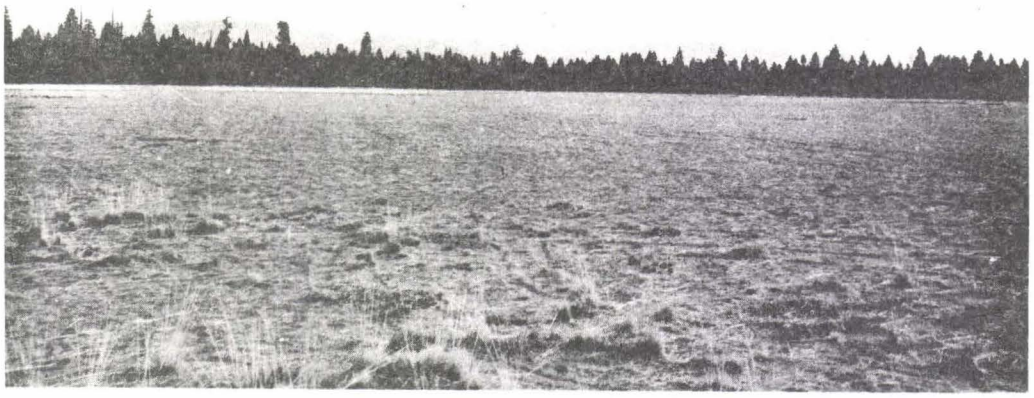


Figure 16. OPEN LEVEL GROUND for anemometer location. Anemometer would be placed at standard 20-foot height.

Figure 17. ANEMOMETER LOCATION NOT IN THE OPEN. Uneven ground and wind obstructions make anemometer height adjustments necessary.

ANEMOMETER LOCATION AND HEIGHT DETERMINATION

Anemometer in the Open

The standard anemometer height is 20 feet above open level ground. Open level ground refers to a smooth, unbroken surface with no obstructions to cause turbulence in the wind. Any anemometer is considered to be in the open if the distance from an obstruction is at least 7 times the height of the obstruction. (See Figure 16.) An anemometer placed in the foreground of this photo would be placed at the standard 20-foot height.

Anemometers Not in the Open

If an anemometer is placed in a location where the ground is uneven, and brush, trees, buildings or other objects do not permit the free and unobstructed flow of the wind, then corrections or adjustments to the placement and height of the anemometer must be made depending on the type, height, and density of the obstruction. (See Figure 17.)

Anemometer height corrections are of two general types: (1) correction to compensate for roughness of the surface caused by uneven ground, brush, boulders, fences, and the like; and (2) correction to compensate for barriers to the wind such as timber, buildings, bluffs, or ridges.

Corrections for Surface Roughness

Any unevenness in the surface due to rough ground, rocks, boulders, or brush increases the surface drag on wind and causes it to become turbulent; that is, to roll or boil. The effect to some extent is felt as gustiness, but the general effect is similar to that of water flowing over rocks and boulders--it is retarded by the obstructions and is also caused to become turbulent. (See Figure 18.) In order to get a wind measurement which would be comparable to that measured at a height of 20 feet over open level ground, it is necessary to raise the height of an anemometer mounted in an area of surface roughness. This height correction, or the height above the ground where the surface obstruction (brush, rocks, or unevenness of ground) has no more effect on the wind than an open level ground surface, is known as the Zero Surface, or z. Several examples and pictures are shown on the following pages (Examples 1 to 6) explaining the determination of Zero Surface and the height to which an anemometer must be raised in different vegetative and topographic situations. In each case the anemometer height is set at 20 feet above the Zero Surface. Anemometer Height = z plus 20 feet.

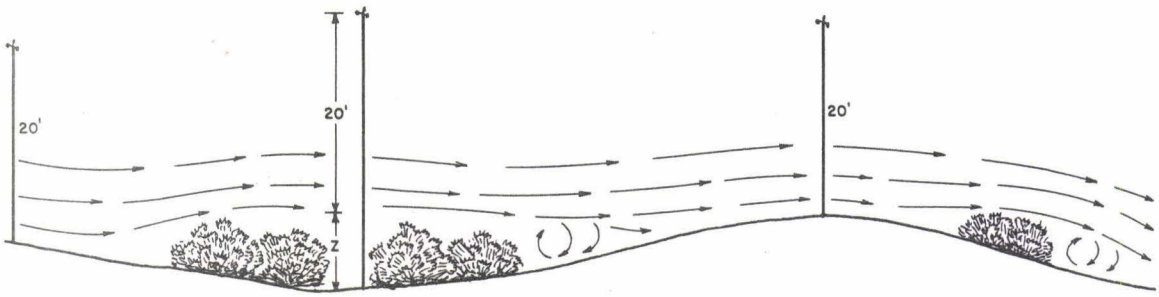


Figure 18. EFFECT OF SURFACE ROUGHNESS (Brush and rough topography). Correction to anemometer height is necessary because of surface roughness.

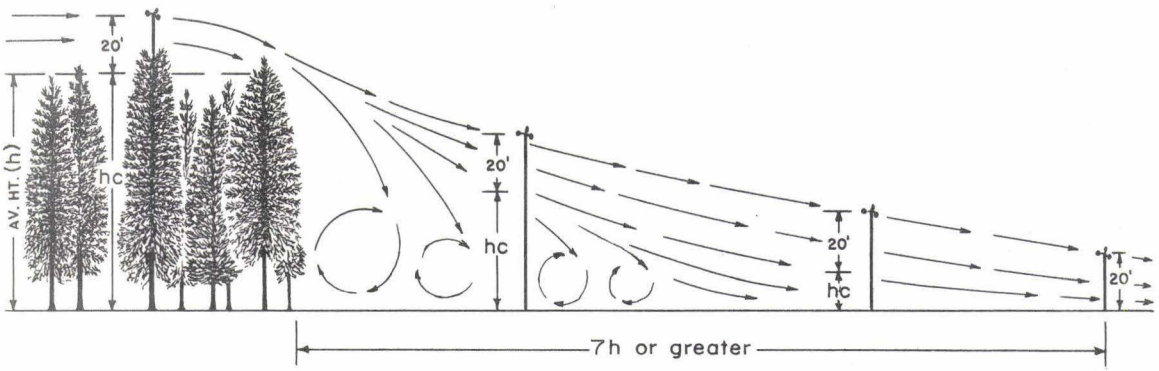


Figure 19. EFFECT OF WIND BARRIERS (Timber - buildings) Correction to anemometer height is necessary because of wind barriers.

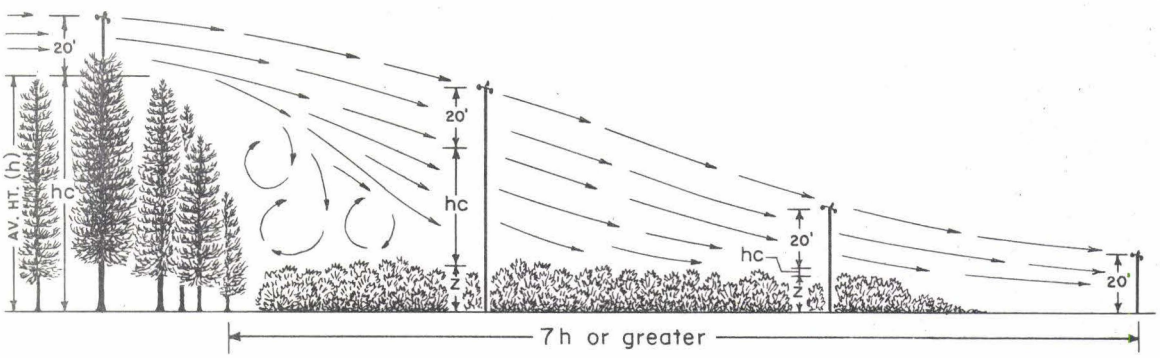


Figure 20. EFFECT OF WIND BARRIERS AND SURFACE ROUGHNESS (Trees and Brush). Correction to anemometer height necessary because of combination of wind barrier and surface roughness.

Corrections for Wind Barriers

Obstacles or barriers to the wind such as buildings, trees, and ridges cause the wind to raise up and flow over ar around the obstacle much as water does when it is dammed by a barrier. Experiments have shown that barriers have little effect on the wind speed at distances greater than 7 times the height of the barrier. If the anemometer is placed closer to the barrier its height has to be increased in order to get the same speed as wind in the open. (See Figure 19.)

The amount by which the anemometer height must be increased because of some obstruction ot barrier is known as the Height Correction or hc. The actual height correction can be determined using the following table. The table shows the height correction factor in terms of Distance of the obstruction from the anemometer location, divided by Height of the obstruction--the quotient of which is expressed as n, where n is the number of times the distance from an obstruction equals the height of the obstruction ($\frac{\text{Distance}}{\text{Height}} = n$).

Anemometer Height Correction Table for Obstructions to Wind

"n" ($\frac{d}{h}$ or $\frac{\text{distance}}{\text{height}}$)	"hc" Anemometer height correction
1	.70h
2	.50h
3	.35h
4	.20h
5	.10h
6	.05h
7	.00h

Where:

d= distance in feet of the anemometer from the obstruction

h= height of the obstruction in feet

n= $\frac{d}{h}$ the number of times the distance from the obstruction equals the height of the obstruction

Several examples and illustrations are shown on the following pages explaining the determination of Height Correction and the height to which an anemometer must be raised in different vegitative, topographic, and other situations. In each case the anemometer is set at 20 feet plus the Height Correction. Anemometer Height = hc plus 20 feet.

Corrections for combination of Surface Roughness and Barriers

If, in addition to a barrier such as timber, there is low vegitation or rough ground at the selected anemometer location then correction z must also be added, making: Anemometer Height = hc plus z plus 20 feet. (See Figure 20.)

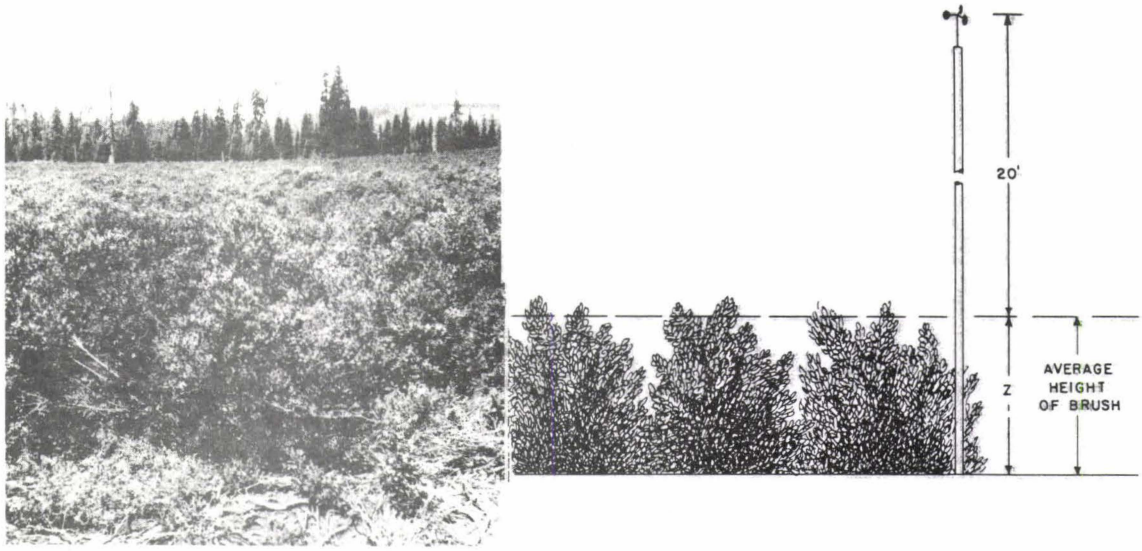


Figure 21. ANEMOMETER LOCATION IN SOLID OR DENSE BRUSH. Anemometer height correction = average height of brush.

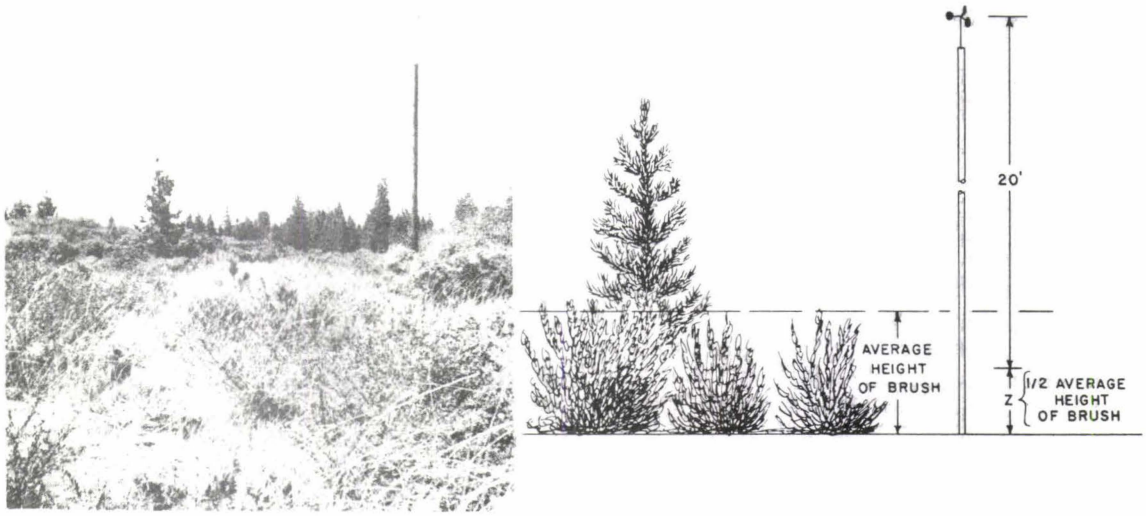


Figure 22. ANEMOMETER LOCATION IN OPEN BRUSH AND/OR SCATTERED SMALL TREES. Anemometer height correction = 1/2 average height of brush and/or small trees

EXAMPLES OF ANEMOMETER HEIGHT CORRECTION

Example 1. --SOLID BRUSH OR DENSE BRUSH

For solid or dense brush the anemometer height above the ground must be increased by the average height of the brush. The ZERO SURFACE (z) is considered to be the average height of the brush. The CORRECTED ANEMOMETER HEIGHT = z plus 20 feet.

Example: If the average brush height of a level brush field was determined to be 6 feet, then the corrected anemometer height would be z plus 20 feet, or 6 + 20 = 26 feet above the ground level.

Example 2. --OPEN BRUSH (and/or SMALL TREES)

The ZERO SURFACE for open brush is considered to be half the average height of the brush.

THE CORRECTED ANEMOMETER HEIGHT (z plus 20 feet) is therefore one-half the average height of the brush plus 20 feet.

Example: If the average brush height was determined to be 8 feet, then the corrected anemometer height in open brush would be one-half of 8 feet (4 feet) plus 20 feet or 24 feet.

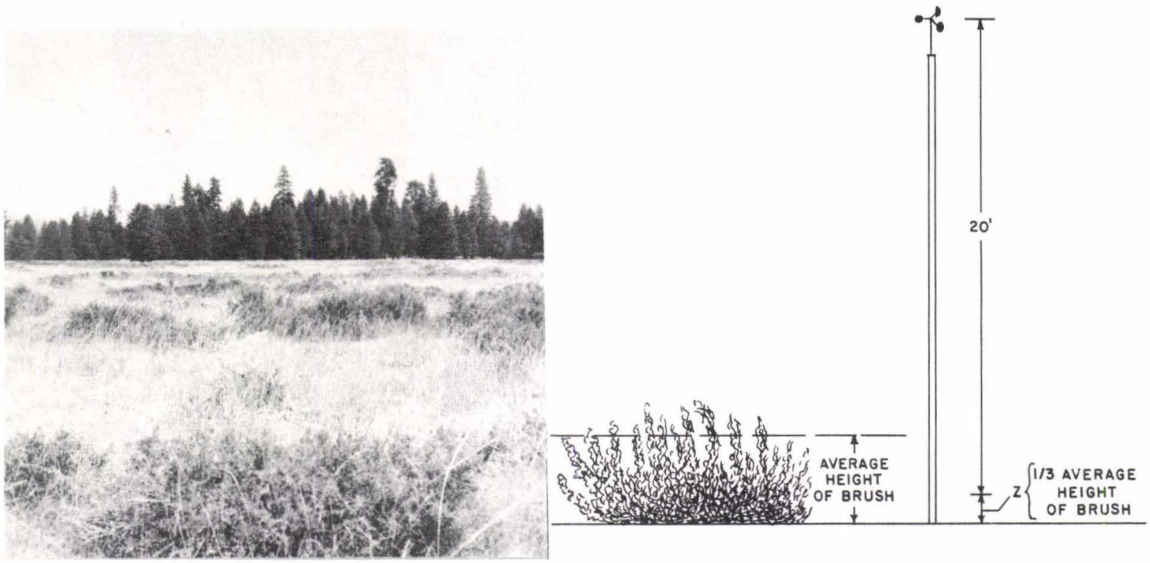


Figure 23. ANEMOMETER LOCATION IN SPARSE BRUSH.
Anemometer height correction = 1/3 average height of brush.

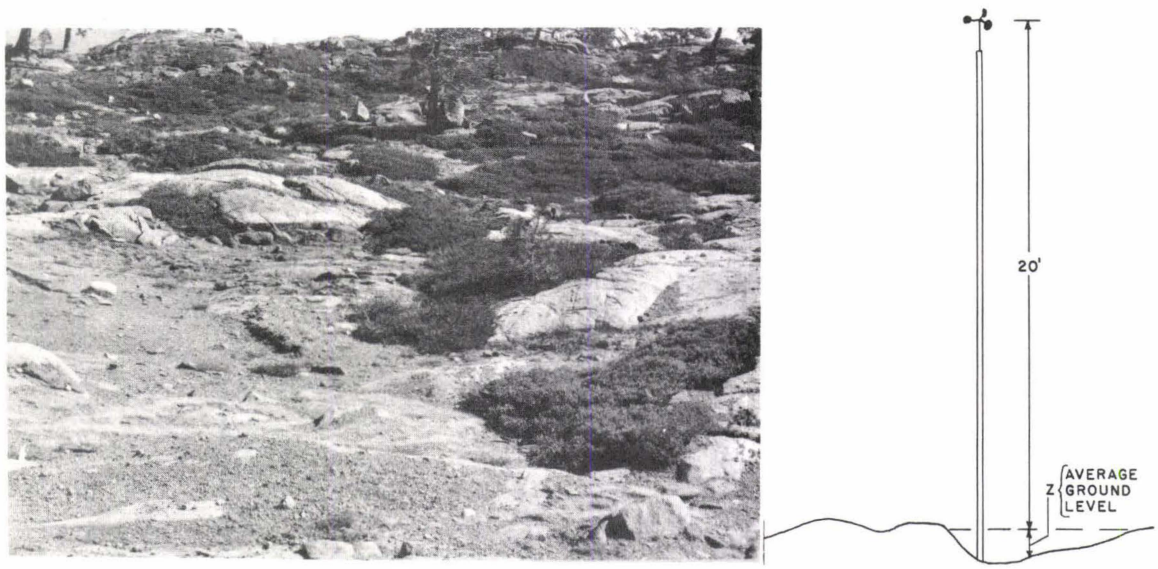


Figure 24. ANEMOMETER LOCATION OVER ROUGH GROUND.
Anemometer height correction = average ground level.

Example 3. SPARSE BRUSH

The ZERO SURFACE for sparse brush is considered to be one-third the average height of the brush.

The CORRECTED ANEMOMETER HEIGHT (z plus 20 feet) is therefore one-third of the average height of the brush plus 20 feet.

Example: If the average brush height was determined to be 6 feet, then the corrected anemometer height would be one-third of 6 feet (2 feet) plus 20 feet, or 22 feet.

Example 4. ROUGH GROUND SURFACE

If the ground surface is uneven and rough, the anemometer height must be corrected in the same manner as for brush. The average ground level should be determined and the anemometer mounted 20 feet above average of the uneven ground, boulders and brush.

Figure 25. ANEMOMETER LOCATION IN ROCKS AND BOULDERS.
Anemometer height correction = average height of boulders.

Figure 26. ANEMOMETER LOCATION ON GENTLE SLOPING RIDGE.
Anemometer should be mounted on the ridge top

Example 5. OPEN ROCKS AND BOULDERS

The anemometer height correction in an area with rocks and boulders in the open (no trees) is treated in the same manner as uneven ground and brush. If the boulders are continuous as in the accompanying photo, the anemometer must be raised 20 feet above the average height of the boulders. If the boulders are scattered, the anemometer is raised 20 feet plus 1/2 the average height of the boulders.

Example 6. GENTLE SLOPING RIDGE

An anemometer in this type of location should be mounted at some point on a ridge as indicated in the accompanying photo. If located on a cleared ridge, no correction to the 20-foot anemometer height is needed. If mounted on a brushy ridge, the applicable correction for brush height (z) must be added.

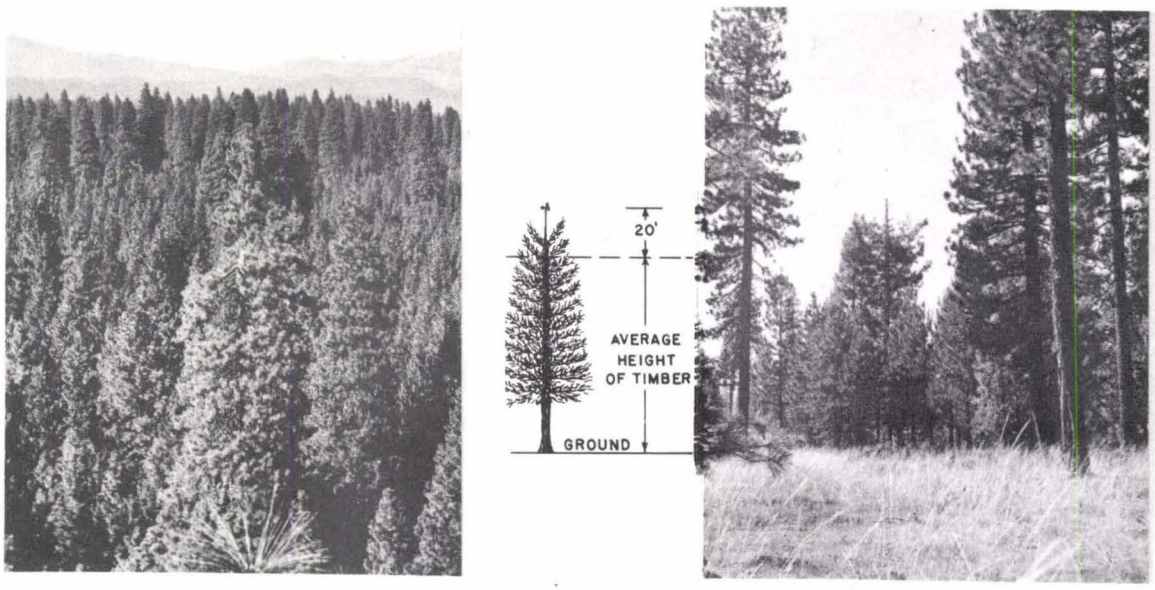


Figure 27. ANEMOMETER LOCATION IN A TIMBER STAND.
Anemometer height correction = average height of timber.

Figure 28. ANEMOMETER LOCATION IN LARGE OPENING IN TIMBER.
No height correction is necessary.

Example 7. TIMBER STAND

An anemometer which is to be erected in a solid timbered area should receive the same type of treatment as one installed over brush. The anemometer should be raised to the standard 20 feet above the average level of the tree crowns. This generally necessitates installing the anemometer in the top of one of the taller trees which projects above the average level of the tree tops. Tree top installations should be avoided if possible because of the difficulty of installing, servicing, and removing the anemometers, and also because of the safety hazard. Particularly tall trees, or trees with exceptionally large trunks, should be avoided because of hazards to climbers.

Example 8. LARGE OPENING IN TIMBER

No height adjustment for the anemometer is necessary provided the distance of the anemometer from the timber obstruction is over 7 times the height of the timber. Occasionally in a timbered area it is possible to locate the anemometer in a large opening at some distance from the weather station, and then run wires from the anemometer to the buzzer or light recorder in the weather shelter so that the wind measurement can still be made at the shelter which may be near the timber.

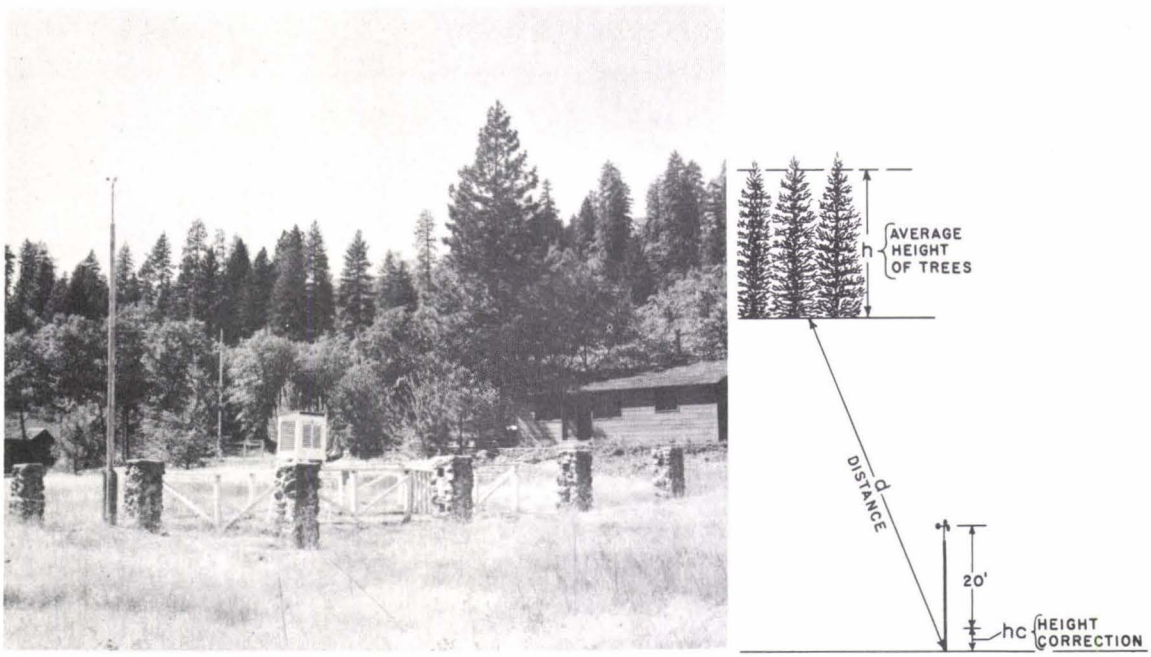


Figure 29. ANEMOMETER LOCATION IN SMALL OPENING IN TIMBER. Anemometer height must be corrected according to its distance from the timber and the height of the timber.

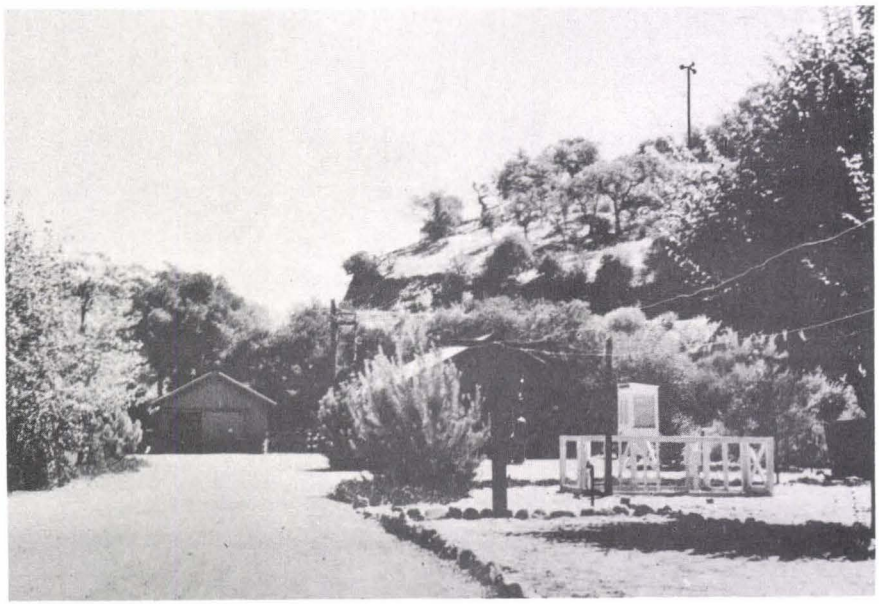


Figure 30. --FIRE WEATHER STATION IN A SHELTERED COVE OR MEADOW. Anemometer should be located on an exposed ridge.

Example 9. SMALL OPENING IN TIMBER

In timbered country it is sometimes possible to make an anemometer installation in a small opening in the timber in order to avoid a tree-top installation. In such case it is necessary to adjust the height of the anemometer because of the obstruction to the wind by the trees. The amount of correction depends on height of the trees and distance of the anemometer from the trees. This correction in anemometer height is made according to the Anemometer Height Correction Table on page 21.

The CORRECTED ANEMOMETER HEIGHT is hc plus 20 feet.

Example: Timber height (h) is 80 feet (average height of trees).
Distance (d) is 400 feet (distance of anemometer from timber).

$$n = \frac{d}{h} = \frac{400}{80} = 5$$

Referring to the Anemometer Height Correction Table on page 21, the correction for n = 5 would be .10 of h. Since "h" in this example is 80, .10 x 80 = 8 feet.

The CORRECTED ANEMOMETER HEIGHT would be 20 + 8 = 28 feet.

Example 10. COVE OR SMALL MEADOW

In locations similar to the photo in Figure 30, where a station is located in a sheltered cove or meadow, it is best to locate the anemometer up on a ridge or bench where it will be exposed to the prevailing winds. The ridge in the accompanying photo would be well exposed.

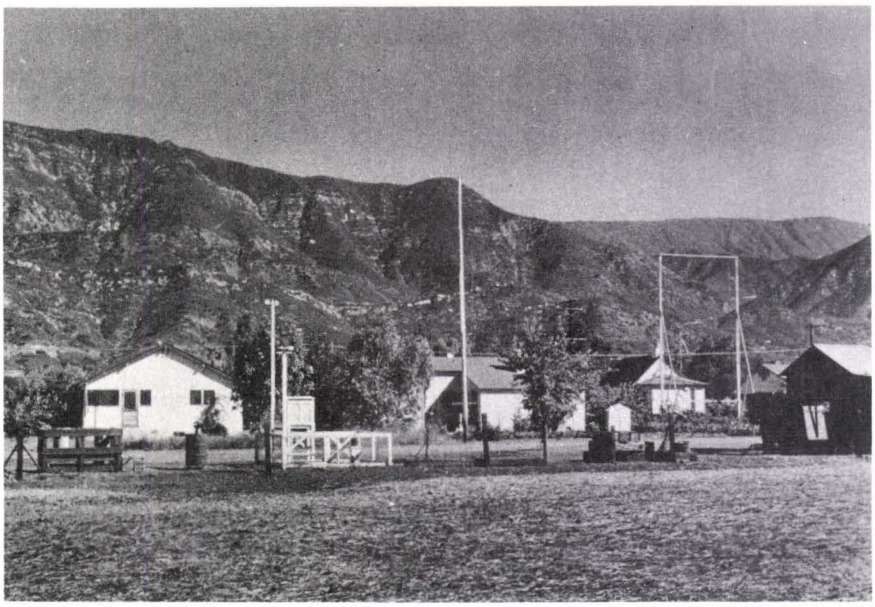


Figure 31. --FIRE WEATHER STATION IN A GROUP OF BUILDINGS AND SCATTERED TREES. Anemometer height must be corrected according to distance and height of obstructions.

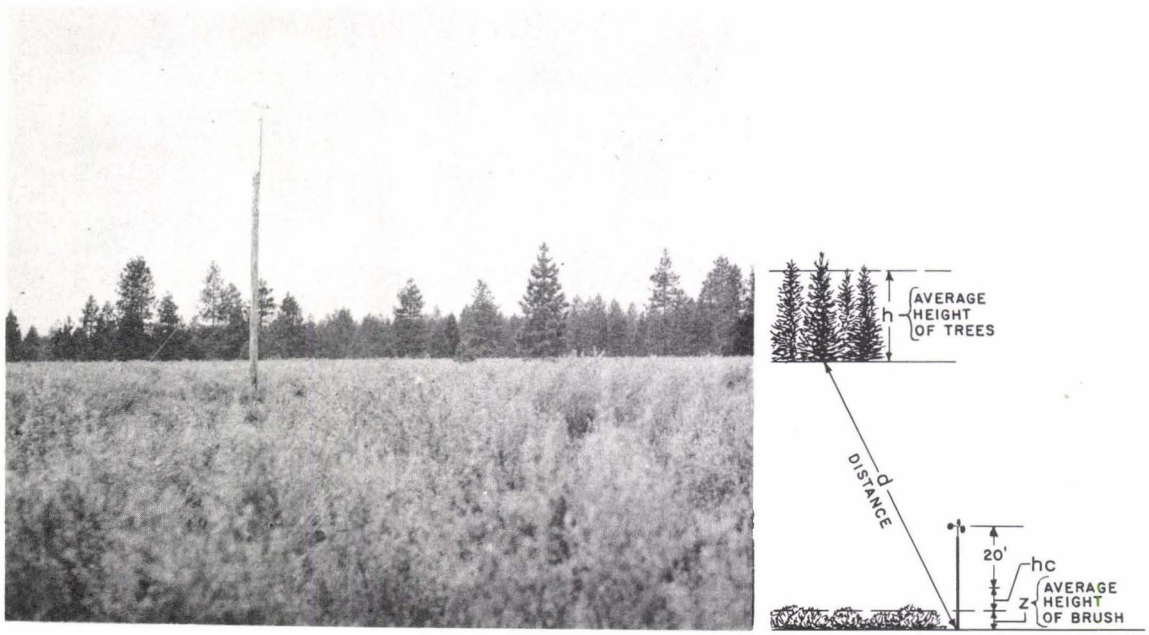


Figure 32. ANEMOMETER LOCATION IN BRUSHY OPENING IN TIMBER. Anemometer height must be corrected both for brush height and timber obstruction.

Example 11. GROUP OF BUILDINGS AND SCATTERED TREES

The anemometer height for a location similar to that in this photo, where the buildings and trees are in the direction of the prevailing wind, would be determined similarly to that in situation No. 9.

Example: The Zero Surface (z) for open level ground would be 0. Average Height (h) of buildings and trees is 25 feet. Average Distance (d) from buildings and trees is 100 feet. Then $n = \frac{d}{h} = \frac{100}{25} = 4$.

From the table on page 21, the correction for an obstruction at a distance of n = 4 would be .20h. If h = 25 feet, then the anemometer height correction (hc) would be .20 x 25 feet = 5 feet. Corrected anemometer height is 20 feet + 5 feet = 25 feet.

Example 12. LARGE BRUSHY OPENING SURROUNDED BY TIMBER

In this case it is necessary to make correction both for the Zero Surface of the brush plus the effect of the height of the timber. It is necessary to determine the average height of the brush and whether it is dense, sparse or open; the average height of the timber; and the distance of the proposed anemometer location from the timber. Then the anemometer height is adjusted for each condition. The correction for brush height is made the same way as in Examples 1, 2, or 3, and the correction for timber height is made as in Example 9.

Example: Zero Surface (z). The brush is dense and is 5 feet high; z = 5 feet. Timber Height (h). Average height of the trees is 60 feet. Distance (d) of anemometer from timber is 300 feet. $n = \frac{d}{h} = \frac{300}{60} = 5$.

Referring to the Anemometer Height Correction Table on page 21, the correction for an obstruction at a distance of n = 5 from the anemometer would be .10h. If h = 60 feet, then the anemometer height correction (hc) for timber would be .10h or .10 x 60 = 6 feet.

Total anemometer height would be 20 + 5 + 6 = 31 feet.

Figure 33. ANEMOMETER LOCATION ON A STEEL LOOKOUT TOWER ON AN OPEN PEAK. Anemometer can be mounted on a leg of the tower.

Figure 34. ANEMOMETER LOCATION ON A STEEL LOOKOUT TOWER IN TIMBER. Anemometer can be mounted above the tower cab.

Example 13. STEEL LOOKOUT TOWER IN THE OPEN

The anemometer can be attached to a leg of any steel lookout tower which is over 30 feet high and in the open. The method of attachment is not prescribed, but the anemometer should be attached to a leg on the side of the prevailing wind by means of some kind of rigid projecting arms and brackets that will hold the spindle vertical.

If the tower is less than 30 feet tall, the anemometer should not be attached to a leg because the wind turbulence created by the cab would influence the anemometer. The anemometer should then be mounted in the standard manner on a pole away from the tower (see Figure 35), or it can be mounted above the cab and attached in a manner similar to that in Example 14, Figure 34.

Example 14. STEEL LOOKOUT TOWER IN TIMBER

The anemometer height correction is the same as for an anemometer in any timber stand but the method of raising the anemometer to the correct height may be simplified by attaching the anemometer to a leg of the tower instead of on a separate pole or tree top. The anemometer may be raised to the proper height (20 feet plus the correction for timber height) and attached to a leg of the tower on the windward side by means of projecting arms and brackets. If necessary to raise it higher, it can be exposed above the cab of the lookout and attached in a manner similar to the arrangement in Figure 34.

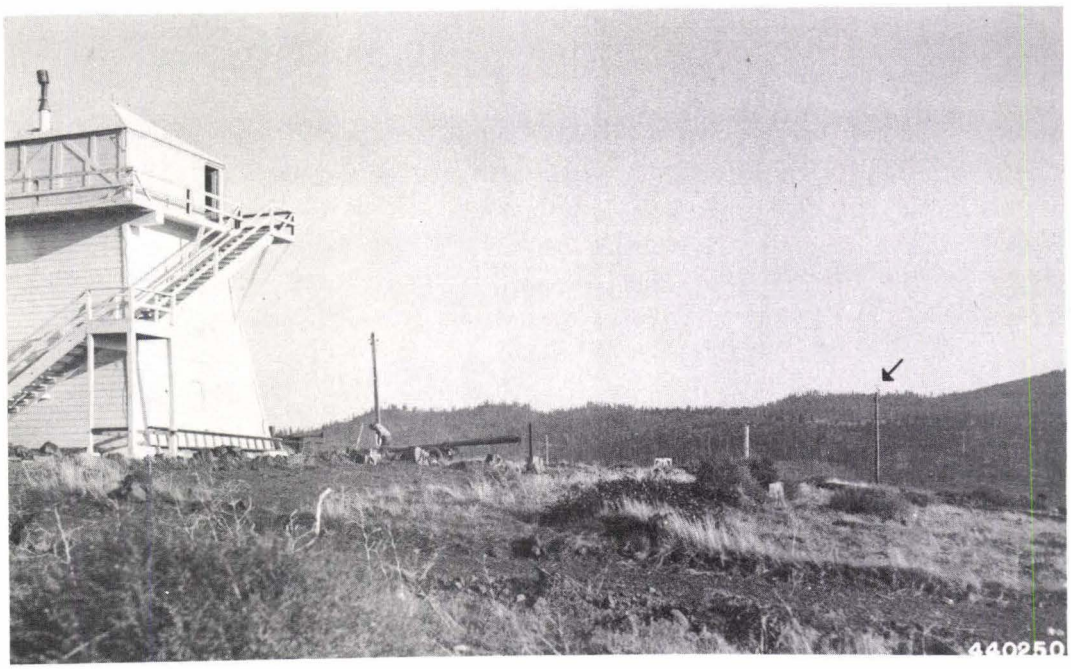


Figure 35. ANEMOMETER LOCATION AT A LOOKOUT BUILDING ON A FLAT MOUNTAIN PEAK. Anemometer should be located away from the building.

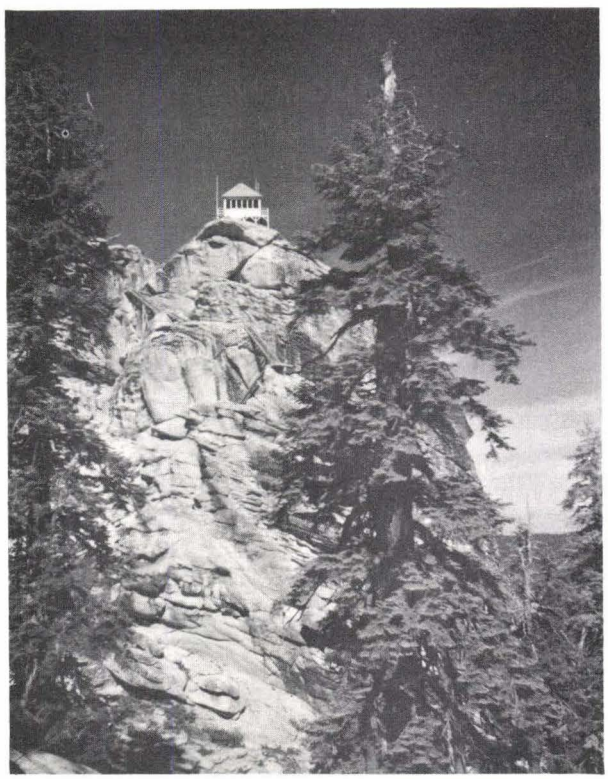


Figure 36. ANEMOMETER LOCATION AT A LOOKOUT BUILDING ON A PRECIPITOUS MOUNTAIN PEAK. Anemometer can be mounted on a pole at the tower.

Example 15. LOOKOUT BUILDING ON A FLAT MOUNTAIN PEAK

On a flat mountain peak with no interference from trees the anemometer should be installed on a pole at the standard 20-foot height, preferably to the windward side of the lookout. It should be erected far enough from the building to eliminate or minimize any interference or turbulence of a wind coming from the direction of the building.

If there is any timber on the mountain top, the anemometer height must be increased as in Examples No. 7 and No. 9 by either increasing the height of the anemometer pole or putting the anemometer in a tree top.

Example 16. LOOKOUT BUILDING ON A PRECIPITOUS MOUNTAIN PEAK

On a steep mountain peak it may not be possible to mount the anemometer on a pole away from the lookout building. In such a case it may be necessary to mount the anemometer on a pipe erected from the catwalk or bracketed to a corner or to the roof of the lookout building. Avoid mounting the anemometer at the edge of a precipice if at all possible, in order to avoid false readings caused by upslope winds.

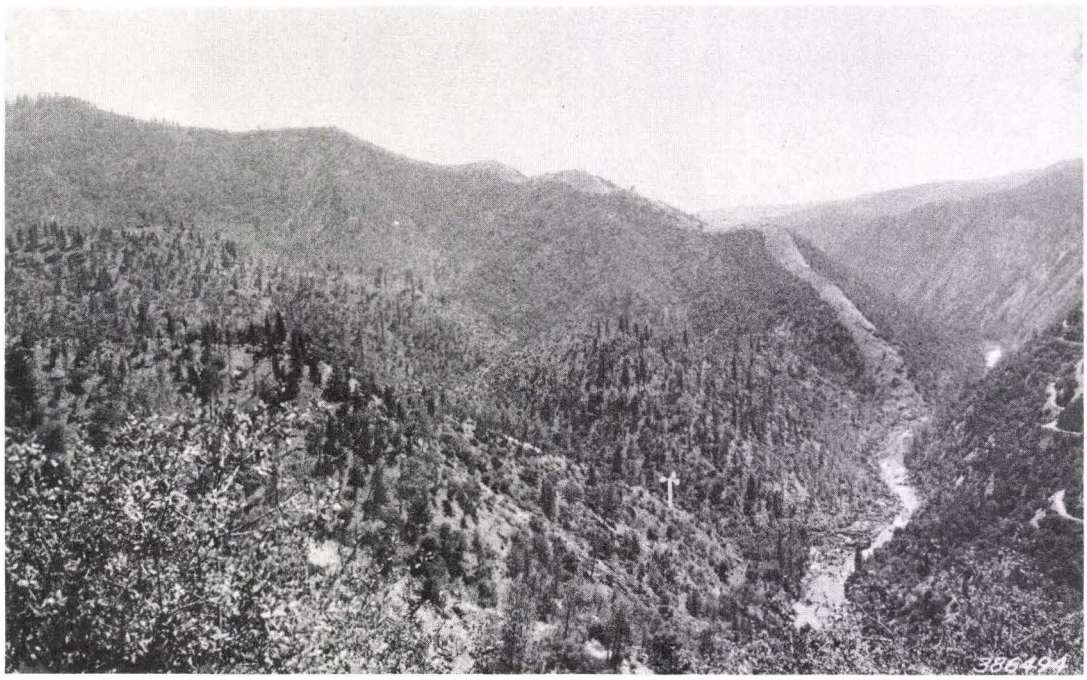


Figure 37. --FIRE WEATHER STATION IN A NARROW CANYON BOTTOM. Anemometer should be located on an exposed ridge. (X indicates location of station.)

Example 17. --NARROW CANYON BOTTOM

If a Fire Weather Station is in a steep canyon bottom as pictured here, the anemometer should be located at some distance up from the canyon bottom. A bench or the top of a spur ridge overlooking the main canyon is preferable. The location of the station in the accompanying photo is at X, and the anemometer location selected is as indicated. A correction for brush and/or timber height (z and hc) may have to be made at this point.

Chapter 5

FIRE WEATHER STATIONS AND INSTRUMENTS

. . . . how to maintain them

	Page
INTRODUCTION	41
MAINTENANCE OF FIRE WEATHER STATIONS AND INSTRUMENTS	43
Station Enclosure	43
Instrument Shelter	43
Fan Psychrometer	43
Fuel Moisture Indicator Scale	47
Fuel Moisture Indicator Stick	47
Litter Bed for Fuel Moisture Indicator Stick	47
Rain Gage	49
Anemometers	49
WHERE TO ORDER EQUIPMENT, PARTS, MATERIALS AND SUPPLIES	53

FIRE WEATHER STATIONS AND INSTRUMENTS

...how to maintain them

Operation of the fire danger rating system over a period of years has shown that fire weather station maintenance is an important part of operating procedure. The maintenance job divides itself naturally into three parts.

1. Periodic inspection and adjustment of fire weather station locations and instrument exposures to compensate for changes in site caused by tree or brush growth, landscaping, construction of new buildings, and the like.

2. Systematic repair and replacement of instruments subject to wear and breakage.

3. Daily housekeeping tasks necessary to assure proper operation of instruments and protection of the investment in the station.

Standard exposures must be maintained so that there will be uniformity between stations and so that observed changes in burning index factors will represent actual changes rather than changes in conditions of measurement. This requires familiarity with the instrument exposure standards and sufficient knowledge of air currents to permit reliable decision on how the standards apply to any one station. It also requires scheduling systematic inspections.

Anemometers, fuel moisture scales and fan paychrometers all are subject to wear as well as breakage. They will record accurately only if in good mechanical condition. This requires the systematic servicing of instruments at least once a year by someone with the mechanical skill to service them properly. Lubrication of instruments when needed, keeping down grass and weeds in the station enclosure, changing psychrometer wicking, and the like, must be routine station operation practices for dependable operation of the danger rating system. The fire weather observer at any station should be responsible for these and other routine station maintenance procedures which can be found on Pt. 1, Ch. 1, of this volume.

(Revised 3/1/68)

MAINTENANCF OF FIRE WEATHER STATIONS AND INSTRUMENTS

Station Enclosure

The fence and gate should be kept in good repair. If originally painted, they should be repainted whenever necessary for good appearance. Keeping the enclosure and immediate perimeter free of tall vegitation, weeds, and annual grass, is an annual maintenance job. Native perennial grass left in the enclosure should not be watered and should be kept clipped or mowed.

Instrument Shelter

No special maintenance is required except to keep the shelter in good repair and painted exterior gloss white whenever necessary. It should be dusted out or cleaned frequently to keep it in presentable appearance. At stations which are not occupied throughout the year or where weather observations are not made throughout the year, the instrument shelter with its instruments must be stored under cover after the fire season. The annual disassembly in the fall and reassembly in the spring of the shelter is facilitated by using screws rather than nails to fasten the shelter to the support.

Fan Psychrometer

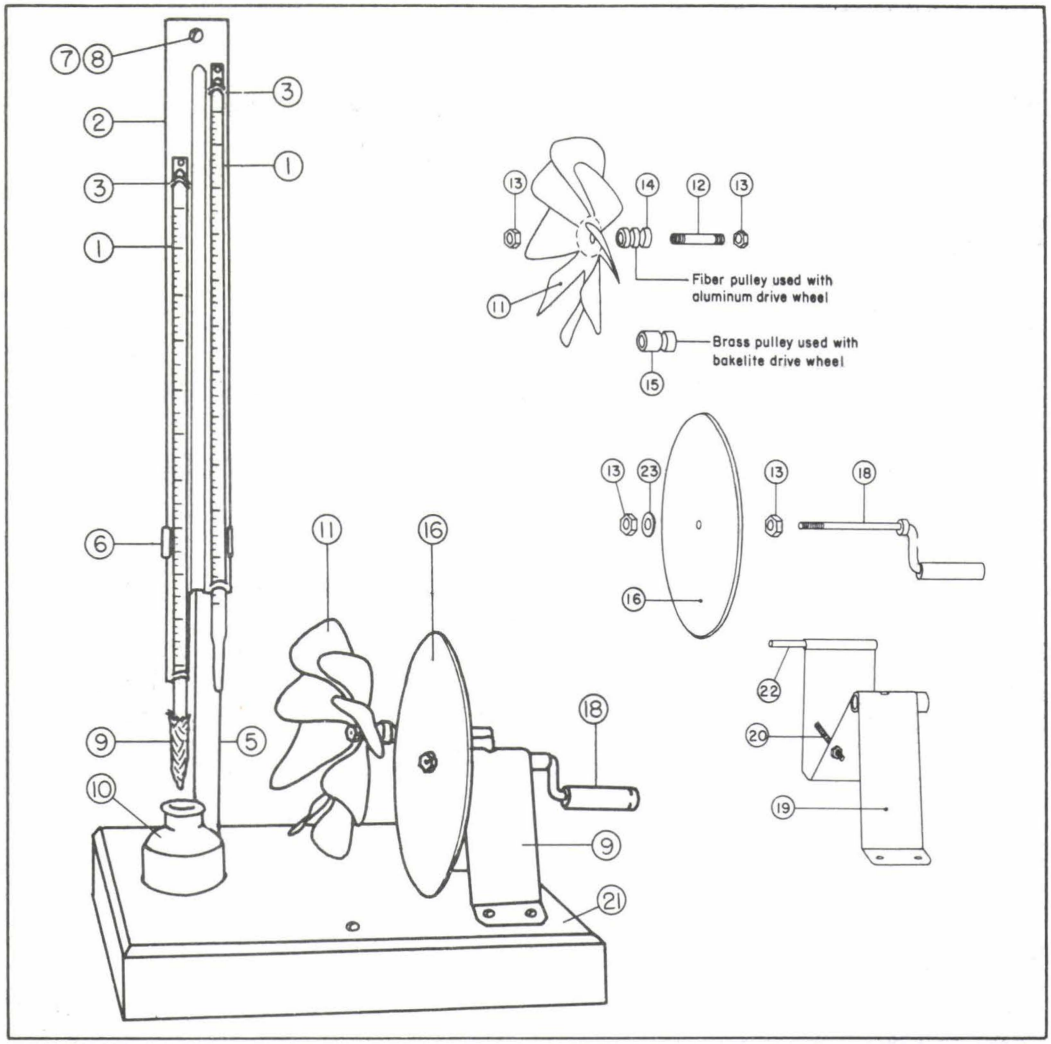
The wicking on the wet bulb thermometer should be changed at least every two weeks, or oftener if it becomes dirty or crusted with alkali.

If the numerals or graduations on the thermometers become faint or difficult to read, they can be darkened and made clearly visible again in the following manner:

Rub a small amount of black paint, ivory black, black enamel or lacquer on all the numerals and graduations. After the paint becomes slightly tacky, moisten a rag with paint thinner or other solvent and lightly wipe off the thermometer tubes to remove the excess paint, thus cleaning the tubes but leaving the black paint in the depressions of the numerals and graduations so they are clearly visible.

If a separation occurs in the mercury column, very gentle tapping or jarring of the thermometer will usually re-unite the mercury. If unsuccesf ul it is best to request a new thermometer.

(Revised 3/1/68)



FAN PSYCHROMETER PARTS LIST

Part no.	Name of part
1	Thermometer
2	Aluminum thermometer holder
3	Thermometer holder clips
4	Complete thermometer and holder assembly (incl. 1, 2, and 3 above)
5	Steel thermometer support
6	Brass connecting clip w/bolt
7	Brass spacer
8	Brass spacer bolt
9	Wick
10	Water bottle
11	Fan
12	Brass bushing for fan pulley
13	Faced brass nut
14	Fiber friction pulley (used with part #16)
15	Brass friction pulley (used with part #17)
16	Aluminum drive wheel
17	Bakelite drive wheel (not shown on newer models; replaces No. 16)
18	Crank
19	Fan and drive wheel support assembly
20	Tension bolt (for assembly No. 19)
21	Wood base
22	Fan and pulley shaft (a part of assembly No. 19)
23	Brass washer (doz.)

Figure 38. FAN PSYCHROMETER

The bearing of the fan paychrometer should be oiled once a week. Apply a drop of oil to the fan bearing, the crank-drive wheel bearing, and the crank handle. Use a nemometer oil, sewing machine oil, typewriter oil or some other light oil. Any excess oil should be wiped off. The entire fan and drive wheel assembly should be disassembled, cleaned in kerosene or solvent, and re-oiled at least once a year before the beginning of the season.

The main point of friction and wear on a fan psychrometer is between the drive wheel and the fan pulley. (See diagramof fan psychrometer, Figure 38.) Most fan psychrometers have an aluminum drive wheel and fiber pulley. (A later model Roger Mfg. Co. has a bakelite drive wheel and a brass friction pulley in order to reduce wear.) After prolonged use the fiber pulley will become excessively worn from slippage against the drive wheel. The fiber pulley has two grooves so that it can be taken off the shaft and reversed when one groove is worn, The fiber pulley should be replaced before the groove is cut through, otherwise the drive wheel will cut into the fan shaft itself. The fiber pulley is replaced in the following manner:

First, spread the fan bearing support away from the drive wheel support so the entire fan and bushing assembly will slip off the fan shaft. Then remove the nut ahead of the fan from the threaded pulley bushing, allowing the fan to slip off. Remove the fiber pulley from the threaded bushing. Put a new fiber pulley on the bushing, and reassemble the entire unit.

For complete disassembly in cleaning, the drive wheel can be similarly removed by taking off the nut ahead of the drive wheel so the drive wheel can be removed from the crank shaft. The crank shaft then slips out of the support bearing and can be cleaned in solvent or kerosene, reassembled, and oiled.

Occasionally there is excessive slippage between the drive wheel and the fan pulley because of insufficient tension between the fan bearing support and the crank bearing support. The tension can be increased and slippage reduced by tightening up on the tension bolt between the fan bearing support and the crank bearing support.

Electric Fan Psychrometer

This model requires no maintenance other than battery changes when needed. It is important that the battery is connected in the correct polarity so that the fan turns in the correct (clockwise) direction. Make sure that air is blowing over the thermometer bulbs rather than away from them.

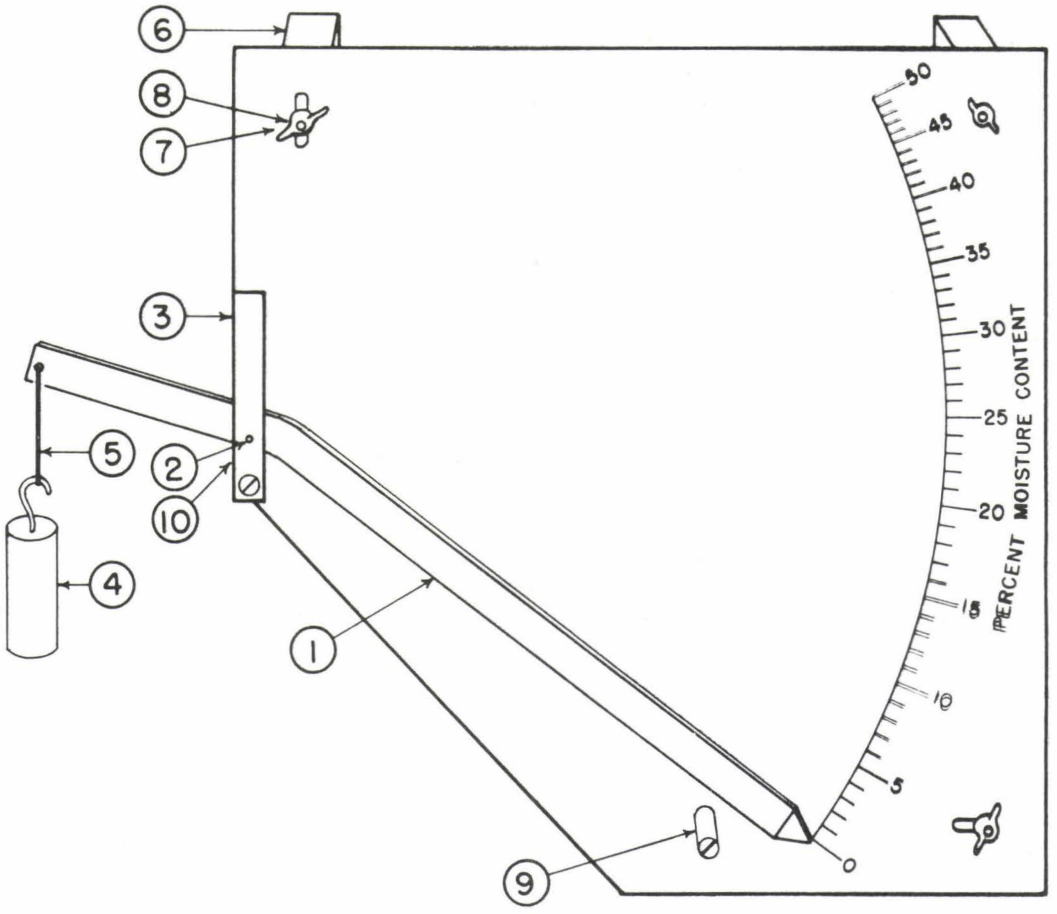


Figure 39. FUEL MOISTURE INDICATOR SCALE.

PARTS LIST

Part no.	Name of part
1	Scale beam (pointer)
2	Scale beam shaft (stainless steel)
3	Beam support ("U"-shaped bracket)
4	100-gram test weight
5	Weight loops
6	Mounting brackets
7	Wing nuts
8	Washers
9	Bumper
10	~~Spacers~~ (2) (Not visible in illustration) Scale Beam Shaft spacers
11	Beam Support Bracket Spacer (1) (not visible in illustration.

Fuel Moisture Indicator Scale

The fuel moisture scale should require very little maintenance. The main job is to check the adjustment with the 100-gram weight. If the pointer does not go to zero percent, loosen the wing nuts that hold the brass plate to the supports and pivot the plate on the upper right hand bolt until the pointer reads zero. Tighten the wing nuts and check to see that pointer still reads zero.

If the shaft or pivot of the scale beam (pointer) should become bent, the scale beam will not swing properly and may also rub or drag against the graduated plate. In that case, the scale beam should be disassembled from the beam support so the scale beam shaft can be straightened, or replaced with a new shaft. The shaft has two spacers on it to make the scale beam swing freely. If they become lost they should be replaced. This shaft does not require oiling. Sometimes the hole of the beam support ("U"-shaped bracket), in which the beam pivots, becomes worn or the beam support bent or broken. In this case a new part is required. Check the weight loop to make sure it swings freely. Straighten it if it becomes bent.

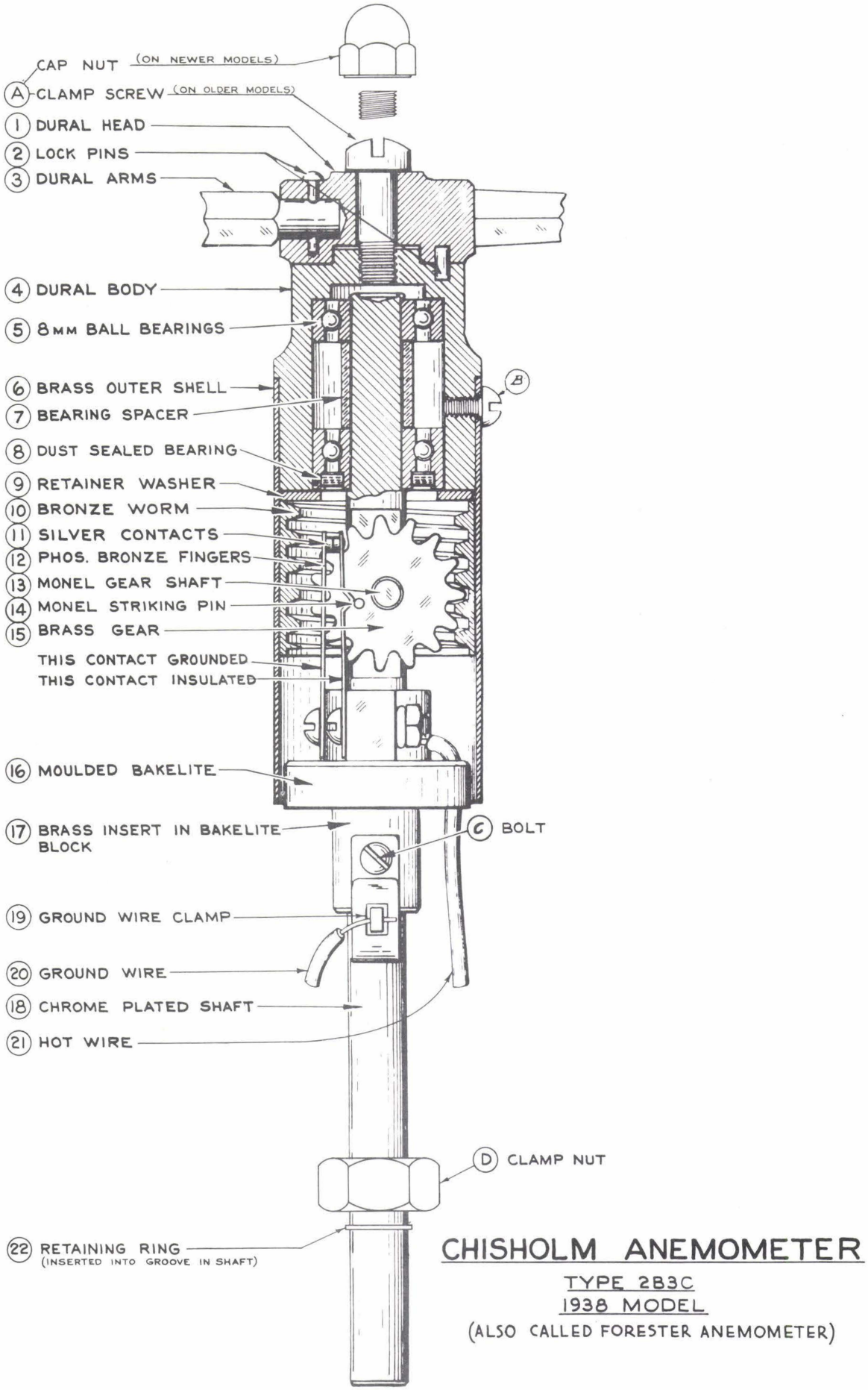
For appearance, it is desirable to clean the brass scale plate occasionally with kerosene or a non-abrasive metal polish.

The Fuel Moisture Indicator Stick

The Fuel Moisture Indicator Stick requires little maintenance, but a new stick must be exposed each season. The stick should not be handled with bare hands, since they eventually impart a film of oil and dirt to the sticks which reduces the accuracy of the stick in picking up and losing moisture. A glove, cloth, paper, tongs, or large paper clip (Parrot binder clip No. 110) should be used in picking up and handling the stick. If the stick should become spattered with mud, allow the stick to dry and then brush off the dirt but do not rub it into the wood. If the stick becomes excessively checked, oily, or otherwise damaged in any way, a new stick should replace the old one.

Litter Bed for Fuel Moisture Indicator Stick

The litter bed should be kept free of any grass, weeds, or other growing or green material and should not be allowed to become shaded by any other plants or objects. The litter in the bed should be kept at a depth of two inches by adding new litter to the bed when necessary. During the winter months yearlong stations may leave green grass in the fuel bed (clipped at the top of the fuel bed frame so as not to be more than 2" in height.) in keeping with other green vegetation in the surrounding area.



CHISHOLM ANEMOMETER

TYPE 2B3C

1938 MODEL

(ALSO CALLED FORESTER ANEMOMETER)

Rain Gage

The rain gage should be inspected to see that it has no leaks and has no dents either in the measuring tube or in the rim of the funnel. The gage should be kept clean and free of dirt, twigs, leaves or other debris. The measuring tube should always be emptied after each measurement. The wooden support or stand should be kept painted white. The gage must be brought indoors at unoccupied stations in winter to prevent water from freezing and breaking tne tube.

Care should be used in handling the measuring stick to prevent its becoming oily or dirty. A dirty, oily, or broken stick must be replaced.

Anemometers

Because of difference in manufacture, each kind of anemometer has slightly different maintenance requirements. The most important requirements are the monthly oiling of the bearings, and annual servicing and inspection of the anemometer for faulty or broken parts. Generally. one or two drops of oil per bearing is sufficient. Do not use to much. Any excess oil should be wiped off. Only anemometer oil, sewing machine oil, typewriter oil, or a similar light oil should be used.

Except for yearlong stations the anemometer must be taken down in the fall after fire season and stored for the winter so that it doesn't stay out in the weather and isn't exposed to excessive wear or damage. The annual inspection and service of the anemometer, by designated experienced personnel only, should be done some time before the beginning of the next active season.

The bearings should be cleaned in solvent or kerosene and re-oiled. Do not use carbon tetrachloride for cleaning, since this may induce rusting. The annual service should also include cleaning the electrical contact points and checking the contact mechanism for proper spring tension and clearance between points.

Annual Check and Maintenance of Chisholm Anemometer or Forester - 1938 Model, Type 2B3C

Since most of our anemometers in use are Chisholm Anemometers (1938 Model, Type 2B3C), detailed instructions are given here for the annual check and maintenance of this model(also called Forester Anemometer).

TO DISASSEMBLE

1. Disconnect wires (20 and 21) from anemometer and remove anemometer from its support or standard.

2. Remove cap nut A (or clamp screw) on top and remove cup and arm assembly.

3. If provided with clamp nut (D) for clamping the shaft (18) to the anemometer support, remove the retaining ring and clamp nut from the shaft.

4. Remove bolt (C) and ground-wire clamp (19) from shaft (18).

5. Carefully remove electrical contact unit (parts 11, 12, 16, 17) by sliding the unit straight down (do not turn) over the end of shaft (18). Be careful not to bend the bronze contact fingers (12).

6. Remove screw (B) from the revolving shell (6) and with a twisting motion remove the shell from dural body (4).

7. With a twisting motion remove shaft and bearing assembly (18, 5, 8) from dural body (4).

TO SERVICE AND INSPECT

1. Wash all parts except the electrical contact unit (11, 12, 16, 17) with kerosene (or solvent). Wash by plunging the parts up and down in kerosene. Then allow kerosene to drain from the parts and dry them with a clean cloth.

2. (a) Place about two drops of oil in each of the upper and lower ball bearings (5, 8).

   (b) Place a drop of oil on gear shaft (13), back of gear (15).

   (c) Place about two drops of oil around the top of the worm gear (10) on the inside of the revolving shell (6). Use only anemometer oil or a good lightweight oil such as gun oil, typewriter oil or sewing machine oil. Do not use too much oil. Any excess oil should be wiped off. Be careful not to get oil on the silver contact points (11).

3. Check the silver contacts (11) to see that they are not burnt. If necessary, they can be cleaned with a fine emery cloth. If burned badly they should be replaced. (Burned contact points are caused by too strong an electrical current--too many batteries in circuit).

4. Check the contact mechanism by slipping the entire electrical contact unit (11, 12, 16, 17) on shaft (18) and temporarily fasten it in place. Then manually turn the gear (15) and observe whether the striking pin (14) causes the bronze fingers to alternately make and break contact at silver contacts (11). The electrical circuit can be further checked by temporarily connecting the wires to the buzzer or counter circuit. (Before reassembling the anemometer, the electrical contact unit will have to be removed from the shaft.)

TO REASSEMBLE

1. Insert bearing and shaft assembly (5, 18, 8) into dural body (4).

2. Invert the above assembly and center the brass retainer washer (9) on the bottom face of dural body (4). Invert the outer shell (6) and with a twisting motion slip the shell on the body so that the hole in the shell coincides with the hole in the body. Then fasten screw (b).

3. Looking into the anemometer from the bottom, turn the shaft so the gear rotates until the striking pin (14) is in its uppermost position and in line with the shaft. Hold at this point.

4. Carefully slip the electrical contact unit (11, 12, 16, 17) onto shaft (18) with the hole of the unit and shaft lined up so that the bronze fingers are on the same side of the shaft as the brass gear (15). Important: Do not let the bronze fingers strike the brass gear when sliding this unit into place.

5. When the hole of the unit and the shaft coincide, replace bolt (C) and ground wire clamp (19).

6. Replace clamp nut (D) on shaft (18) and then replace retaining ring and press it into place in the groove on shaft (18).

7. Replace cup and arm assembly (with lock pin seated) and fasten with cap nut (A) or clamp screw.

8. Before replacing anemometer on support, check its operation by connecting the wires to the electrical circuit and buzzer or counter and rotate the cups to see whether proper electrical contact is being made.

AGRICULTURE—FOREST SERVICE—SAN FRANCISCO

Chapter 6

FORMS AND TABLES

SAMPLE FORMS

- Fire Weather and Danger Index Record - Form PSW, 4400-173 (R-5, 5100-173)
- Danger Index Area Average Summary Sheet - Form PSW, 4400-183 (R-5, 5100-183)
- Summary Form for Fire Danger Indexes - Form PSW, 4400-193 (R-5, 5100-193)
- Agency Forms

CODING TABLES

- Elevation, Month, Weather Element, and Danger Index Codes
- Grass Curing, Brush Growth, and Timber Buildup Codes

RELATIVE HUMIDITY TABLES

WIND COUNTER CONVERSION TABLES

- Table 1 - for Chisholm Anemometers
- Table 2 - for Friez and Roger Anemometers

DANGER INDEX COMPUTING TABLES

- Grass Burning Index
- Brush Burning Index
- Timber Burning Index
- Fire Ignition Index
- Fire Load Index

FIRE WEATHER AND DANGER INDEX RECORD

CODE

NAT. NO.	STA. NO.	ELEV.	YR	MO

FOREST, COUNTY, OR PARK _____

STATION NAME _____ MONTH _____ 19____ DISTRICT _____

ELEVATION _____ FT. FIRE DANGER RATING AREA NO. _____ WIND SPEED BY: COUNTER _____ OTHER _____

DATE	1200	1330 PST (OBSERVATION TIME)																			
		WIND		TEMP.						GRASS--CODE FOR PERCENT CURED	BRUSH--DAYS SINCE NEW GROWTH BEGAN										
	WIND SPEED--MPH	DIRECTION CODE	SPEED--MPH	DRY BULB	WET BULB	RELATIVE HUMIDITY	FUEL STICK MOISTURE CONTENT	AVERAGE AFTERNOON WIND SPEED--MPH	PRECIPITATION		CODE	TIMBER BUILDUP	TIMBER BUILDUP CODE	GRASS BURNING INDEX	BRUSH BURNING INDEX	TIMBER BURNING INDEX	IGNITION INDEX	FIRE LOAD INDEX BASED ON G, B, AND T FUEL TYPE	PREDICTED AREA FIRE LOAD INDEX	TIME THUNDERSTORM BEGAN--24 HR. CLOCK	TIME THUNDERSTORM ENDED--24 HR. CLOCK
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
01																					
02																					
03																					
04																					
05																					
06																					
07																					
08																					
09																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					
25																					
26																					
27																					
28																					
29																					
30																					
31																					

SAMPLE

FEDERAL STATIONS SEND ORIGINALS TO ZONE DISPATCHER. MAKE ADDITIONAL COPIES AS REQUIRED. CDF AND CONTRACT COUNTY STATIONS FORWARD ORIGINALS TO DIVISION OF FORESTRY HEADQUARTERS, SACRAMENTO.

REMARKS:

SIGNATURE OF OBSERVER _____

REVIEWED BY _____

INSTRUCTIONS

Use firm sharp pencil for filling out this form. Do not use typewriter, ink, or ballpoint pen.

Do not write in the margins except in the space provided under "Remarks."

Complete all entries at top of form, including codes in box at upper left.* Weather readings should always be made at 1330 Pacific Standard Time. Insertion of the national station number is optional. If station is assigned to two FDR areas, a separate form, completely filled in, should be used for each.

Column Number

1. WIND SPEED. Enter corrected speed in miles per hour to the nearest whole mile at time of observation.*
2. WIND DIRECTION CODE. Enter the code number for the direction from which the wind is blowing.*
3. WIND SPEED. Same as (1) above.
4. DRY-BULB TEMPERATURE. Enter to nearest whole degree.*
5. WET-BULB TEMPERATURE. Enter to nearest whole degree.*
6. RELATIVE HUMIDITY. Enter to nearest whole percent.* Never enter 100 percent.
7. FUEL STICK MOISTURE CONTENT. Enter to nearest whole percent for 10.0 or above and to nearest 0.5 percent when less than 10 percent.* When over 50 percent enter 50.0. If observation is missed, fuel stick moisture must be estimated.
8. AVERAGE AFTERNOON WIND SPEED. Enter corrected average speed to nearest whole mile.*
9. PRECIPITATION. Enter to nearest 0.01 inch the 24-hour amount or precipitation. If none has occurred enter 0.00. If last observation was missed, enter the accumulated amount in rain gage.*
10. GRASS--CODE FOR PERCENT CURED. Make entry only if station is computing burning index for grass fuel type. Enter 0, 1, 2, 3, or 4.*
11. BRUSH--CODE FOR DAYS SINCE NEW GROWTH BEGAN. Make entry only if station is computing burning index for brush fuel type. Enter in box days since new growth each day until 121 is reached. In column enter code corresponding to entry in box.* Box at top of column is for transcribing entry from last day of previous month.
12. TIMBER BUILDUP. Make entry only if station is computing burning index for timber fuel type. Enter buildup in tenths.* At top of column enter buildup from last day of previous month. If observation is missed, timber buildup must be computed and entered using the estimated FSM of column 7.
13. TIMBER BUILDUP CODE. Enter code number in this column for timber buildup shown in column 11.*

14, 15, 16. BURNING INDEX. Compute and enter.*

17. IGNITION INDEX. Compute and enter.*
18. FIRE LOAD INDEX. Circle G, B, or T in column heading to indicate fuel type for which the Fire Load Index is computed [see FDR station list]. Compute Fire Load Index and enter.* If two Fire Load Indexes are computed, use a separate form for each--do not use column 18 or the margin.
19. PREDICTED AREA FIRE LOAD INDEX. Enter tomorrow's predicted Fire Load Index for the area in the column opposite tomorrow's date.
20. TIME THUNDERSTORM BEGAN--24-HOUR CLOCK. Record beginning when lightning is first seen or thunder heard. At lookouts or other stations having unrestricted visibility record only thunderstorms not more than 30 miles away. If no storms, leave blank. Make entries to nearest half-hour.
21. TIME THUNDERSTORM ENDED--24-HOUR CLOCK. Record end when last lightning is seen or thunder heard. Visibility restrictions as above. If no storms, leave blank. Make entries to nearest half-hour.

NOTE: The black dots represent the number of digits to be entered in the column or box.

*See coding tables in Fire Danger Rating book for coding instructions.

(Revised 3/1/68)

DANGER INDEX AREA AVERAGE SUMMARY SHEET

Month _____ 19 _____

Forest, County or Park _____

AREA, FUEL TYPE INDEX	FIREWEATHER STATION NAME	DATE																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SUMMARY FORM FOR FIRE DANGER INDEXES

Forest, County, or Park _____ Month _____ Year 19___ FDR Area No _____

	Date	Area Average			Predicted							Carry over							
		Grass Burning Index	Brush Burning Index	Timber Burning Index	Grass Burning Index	Brush Burning Index	Timber Burning Index	Area Average Ignition Index	Predicted Ignition Index	Area Average Fire Load Index for G, B, or T fuel type	Predicted Fire Load Index	Fire Weather Severity	Decade Normal Fire Load Index	Departure from Normal Fire Load Index					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
1	01																		
	02																		
	03																		
	04																		
	05																		
	06																		
	07																		
	08																		
	09																		
	10																		
	Tot.																		
	Avg.																		
2	11																		
	12																		
	13																		
	14																		
	15																		
	16																		
	17																		
	18																		
	19																		
	20																		
	Tot.																		
	Avg.																		
3	21																		
	22																		
	23																		
	24																		
	25																		
	26																		
	27																		
	28																		
	29																		
	30																		
	31																		
	Tot.																		
	Avg.																		

SAMPLE

Federal stations send original to Pacific Southwest Forest & Range Expt. Sta., Berkeley. Make additional copies as required. CDF and contract county stations forward original to Division of Forestry Headquarters, Sacramento.

PSW, 4400-193 (R-5, 5100-193) (REVISED 3/1/68)

INSTRUCTIONS

Complete all entries at the top of the form. Use one form for each fire danger rating area.

Column Number

1, 2, 3. AREA AVERAGE BURNING INDEX. Enter the average grass, brush, and/or timber burning index for the area to the nearest whole number.

4, 5, 6. PREDICTED BURNING INDEX. Enter tomorrow's predicted grass, brush, and/or timber burning index for the area opposite tomorrow's date.

7. AREA AVERAGE IGNITION INDEX. Enter the average ignition index for the area to the nearest whole number.

8. PREDICTED IGNITION INDEX. Enter tomorrow's predicted ignition index for the area in this column opposite tomorrow's date.

9. AREA AVERAGE FIRE LOAD INDEX. At the head of this column encircle G, B, or T to indicate the fuel type for which the fire load index is computed in this area. Enter the average fire load index for the area to the nearest whole number. If the indexes from all stations in the FDR area are missing, the area average fire load index must be estimated, entered, and encircled.

10. PREDICTED FIRE LOAD INDEX. Enter tomorrow's predicted fire load index for the area in this column opposite tomorrow's date.

11. FIRE WEATHER SEVERITY. Fire weather severity is the accumulation of fire load indexes since January 1. See FDR Handbook for instructions on how to obtain the initial value which will have accumulated from January 1 to the beginning of the observation season. Each day add the area average fire load index from column 9 to the previous day's entry in column 11 and enter in column 11. At the beginning of a new month carry over the value from the last day of the previous month by entering it in the box titled "carry-over" at the top of column 11.

Decade Averages. At the end of each decade, total columns 1, 2, 3, 7, and 9 and enter on the proper line. Divide the total of each column by the number of days of recorded data and enter the average on the proper line. The total of column 9 will always be divided by the number of days in the decade, since the fire load index must be estimated if observations are missing. Enter all averages to the nearest whole number.

12. DECADE NORMAL FIRE LOAD INDEX. These normals have been supplied for each FDR area. Enter the normal for the appropriate decade in column 12 on the line labeled "Avg."

13. DEPARTURE FROM NORMAL FIRE LOAD INDEX. At the end of each decade subtract the decade normal fire load index in column 12 from the decade average in column 9 and enter the difference in column 13. Include the proper sign, plus or minus. If decade normals have not been provided for months before or after the normal fire season, omit this computation for those months.

14, 15, 16. Blank columns for possible future use.

CODING TABLES
for use with
FIRE WEATHER AND DANGER INDEX RECORD

ELEVATION CODE
(Code Box)

Feet	Code*
40	000
50	000
60	001
etc.	etc.
340	003
350	004
etc.	etc.
2,650	026
etc.	etc.
10,420	104

*Elevation is coded to nearest 100 feet. Those ending in 50 are coded to nearest even 100 feet as above.

MONTH CODE
(Code Box)

Month	Code
January	01
February	02
March	03
April	04
May	05
June	06
July	07
August	08
September	09
October	10
November	11
December	12

FUEL STICK MOISTURE CONTENT
(Columns 1, 8)

Percent	Code
1.5	01.5
2.0	02.0
2.5	02.5
etc.	etc.
10.0*	10.0*
11.0	11.0
etc.	etc.
50.0(and over)	50.0

*Use whole numbers only for values over 10.0.

WIND SPEED (Columns 2, 4, 9)
RELATIVE HUMIDITY (Column 7)
DANGER INDEXES (Columns 15-20)

Value	Code
0	00
1	01
2	02
etc.	etc.
10	10
11	11
etc.	etc.
98	98
99 and 100	99

WIND DIRECTION
(Column 3)

Direction	Code
Northeast	1
East	2
Southeast	3
South	4
Southwest	5
West	6
Northwest	7
North	8
Calm	0

TEMPERATURE
(Columns 5, 6)

Degrees	Dry-bulb code	Wet-bulb code
-10	-010	-10
- 9	-009	-09
etc.	etc.	etc.
0	000	00
1	001	01
etc.	etc.	etc.
10	010	10
11	011	11
etc.	etc.	etc.
87	087	87
etc.	etc.	--
108	108	--
etc.	etc.	--

PRECIPITATION
(Column 10)

Inches	Code
0.00	0.00
0.01	0.01
etc.	etc.
0.10	0.10
0.11	0.11
etc.	etc.
1.00	1.00
1.01	1.01
etc.	etc.
Trace	T
	*

*Use this asterisk symbol when observation is missed but rain occurred and is included in measurement for following day.

CODING TABLES
for use with
FIRE WEATHER AND DANGER INDEX RECORD

GRASS-CODE FOR PERCENT CURED

(Column 11)

Percent Cured	Code
0 (Green)	0
25	1
50	2
75	3
100 (Dead)	4

BRUSH-CODE FOR DAYS SINCE NEW GROWTH BEGAN

(Column 12)

Days	Code
0- 10	01
11- 20	02
21- 30	03
31- 40	04
41- 50	05
51- 60	06
61- 70	07
71- 80	08
81-100	09
101-120	10
121 or over	11

TIMBER BUILDUP

(Column 13)

Buildup	Code
0.0	000.0
0.1	000.1
etc.	etc.
10.0	010.0
10.1	010.1
etc.	etc.
100.0	100.0
100.1	100.1
etc.	etc.

TIMBER BUILDUP COMPUTATION TABLE

(Column 13)

Fuel Stick Moisture Content	Buildup Addition
02.5 or less	1.3
03.0 or 03.5	1.0
04.0 or 04.5	0.8
05.0 or 05.5	0.6
06.0 or 06.5	0.5
07.0 to 08.5	0.4
09.0 to 12.0	0.2
13.0 to 19.0	0.1
20.0 and over, or ground covered with snow	0.0

Note: When precipitation has occured, first add the buildup addition to the previous day's timber buildup, then multiply the amount of precipitation in inches by 20 and subtract this from total.

TIMBER BUILDUP CODE

(Column 14)

Timber Buildup	Code
000.0 - 001.9	1
002.0 - 003.9	2
004.0 - 006.9	3
007.0 - 010.9	4
011.0 - 016.9	5
017.0 - 025.9	6
026.0 - 039.9	7
040.0 - 061.9	8
062.0 - 099.9	9
100.0 or over	0

DEPARTMENT OF COMMERCE - WEATHER BUREAU
Washington, D.C. Rev. March, 1958

RELATIVE HUMIDITY TABLE

Pressure 30 Inches

FOR USE AT ELEVATIONS BETWEEN SEA LEVEL AND 500 FEET

Values in body of table are relative humidities (%) with respect to water for indicated values of wet- and dry-bulb temperature in degrees Fahrenheit.

HOW TO USE THE TABLE

Locate at the top of the column the reading corresponding to the wet-bulb temperature. Locate at the left side the reading corresponding to the dry-bulb temperature. Follow down the column under wet-bulb temperature, and across from the dry-bulb; at the intersection of these two columns read the relative humidity. For example:- if the dry-bulb temperature is 42° and the wet-bulb is 37°, the relative humidity is 62%. Dry-bulb 75°, wet-bulb 68°, relative humidity is 70%.

PRESSURE 30 INCHES
(between sea level and 500 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
25	1	13	24	36	47	60	71	84	96																			
26		4	15	26	38	49	61	73	84	97																		
27			7	18	28	40	51	62	74	86	97																	
28				10	21	31	42	53	64	74	86	98																
29				3	13	23	33	43	54	65	76	87	98															
30					6	16	26	36	46	55	66	77	88	99														
31						8	18	28	37	47	58	68	78	89	99													
32						2	11	20	30	39	49	59	69	79	89	100												
33							5	14	23	32	41	51	60	70	80	90	100											
34								8	16	25	34	43	52	62	71	81	90	100										
35							2		10	19	27	36	45	54	63	72	81	91	100									
36									5	13	21	29	38	46	55	64	73	82	91	100								
37										7	15	23	31	40	48	57	65	74	83	91	100							
38										2	10	17	25	33	42	50	58	66	75	83	91	100						
39											5	12	20	27	35	43	51	59	67	75	83	92	100					
40										0	7	15		22	29	37	45	52	60	68	75	83	92	100				
41											3	10		17	24	31	39	46	54	61	69	76	84	92	100			
42												5		12	19	26	33	40	47	55	62	69	77	85	92	100		
43												1		8	14	21	28	35	42	48	55	63	70	77	85	92	100	
44														4	10	16	23	30	36	43	49	56	63	71	78	85	93	100

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
45	6	12	18	25	31	38	44	51	57	64	71	78	86	93	100																								
46	2	8	14	20	26	32	39	45	52	58	65	72	79	86	93	100																							
47		5	10	16	22	28	34	40	46	53	59	66	72	79	86	93	100																						
48		1	7	12	18	23	29	35	41	47	54	60	66	73	79	86	93	100																					
49			3	9	14	19	25	31	36	42	48	54	61	67	73	80	86	93	100																				
50			0	5	10	16	21	27	32	38	43	49	55	61	67	74	80	87	93	100																			
51				2	7	12	17	23	28	34	39	45	50	56	62	68	75	81	87	94	100																		
52					4	9	14	19	24	29	35	40	46	51	57	63	69	75	81	87	94	100																	
53					1	6	10	16	20	26	31	36	41	47	52	58	63	69	75	81	87	94	100																
54						3	8	12	17	22	27	32	37	42	48	53	59	64	70	76	82	88	94	100															
55						0	5	9	14	19	23	28	33	38	43	49	54	59	65	70	76	82	88	94	100														
56							2	7	11	16	20	25	30	34	39	44	50	55	60	65	71	76	82	88	94	100												
57								4	8	13	17	22	26	31	35	40	45	50	55	61	66	71	77	82	88	94	100										
58								1	6	10	14	18	23	27	32	37	41	46	51	56	61	66	72	77	83	88	94	100									
59									3	7	11	16	20	24	29	33	38	42	47	52	57	62	67	72	78	83	89	94	100								
60									1	5	9	13	17	21	26	30	34	39	43	48	53	58	63	68	73	78	83	89	94	100							
61										3	7	10	14	18	22	27	31	35	40	44	49	54	58	63	68	73	78	84	89	94	100						
62										1	4	8	12	16	20	24	28	32	36	41	45	50	54	59	64	69	74	79	84	89	94	100					
63											2	6	10	13	17	21	25	29	33	37	42	46	50	55	60	64	69	74	79	84	89	95	100				
64											0	4	7	11	15	18	22	26	30	34	38	43	47	51	56	60	65	70	74	79	84	90	95	100			
65												2	5	9	12	16	20	24	27	31	35	39	44	48	52	56	61	66	70	75	80	85	90	95	100		
66												0	3	7	10	14	17	21	25	29	32	36	40	44	48	53	57	61	66	71	75	80	85	90	95	100	
67													2	5	8	12	15	19	22	26	30	33	37	41	45	49	53	58	62	66	71	75	80	85	90	95	100
68														3	6	10	13	16	20	23	27	31	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95	100
69														1	5	8	11	14	18	21	24	28	32	35	39	43	47	51	55	59	63	67	72	76	81	85	90	95	100

PRESSURE 30 INCHES
(between sea level and 500 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
70	3	6	9	12	15	19	22	25	29	33	36	40	44	48	51	55	59	64	68	72	77	81	86	90	95	100									
71	1	4	7	10	13	17	20	23	27	30	33	37	41	45	48	52	56	60	64	68	72	77	81	86	90	95	100								
72		3	6	9	12	15	18	21	24	28	31	34	38	42	45	49	53	57	61	65	69	73	77	82	86	91	95	100							
73		1	4	7	10	13	16	19	22	25	29	32	35	39	42	46	50	53	57	61	65	69	73	78	82	86	91	95	100						
74			3	5	8	11	14	17	20	23	26	29	33	36	39	43	47	50	54	58	61	65	69	74	78	82	86	91	95	100					
75			1	4	7	9	12	15	18	21	24	27	30	34	37	40	44	47	51	54	58	62	66	70	74	78	82	86	91	96	100				
76				3	5	8	11	13	16	19	22	25	28	31	34	38	41	44	48	51	55	59	62	66	70	74	78	82	87	91	96	100			
77					4	6	9	12	14	17	20	23	26	29	32	35	39	42	45	48	52	56	59	63	67	71	74	79	83	87	91	96	100		
78					2	5	8	10	13	16	18	21	24	27	30	33	36	39	43	46	49	53	56	60	63	67	71	75	79	83	87	91	96	100	
79					1	4	6	9	11	14	17	19	22	25	28	31	34	37	40	43	46	50	53	57	60	64	68	71	75	79	83	87	91	96	100
80				80	0	3	5	7	10	12	15	18	20	23	26	29	32	35	38	41	44	47	50	54	57	61	64	68	72	75	79	83	87	91	96
81				81		1	4	6	8	11	13	16	19	21	24	27	30	32	36	38	42	44	48	50	54	58	61	64	68	72	76	80	84	88	92
82				82		0	2	5	7	10	12	14	17	20	22	25	28	30	33	36	39	42	45	48	51	55	58	61	65	69	72	76	80	84	88
83				83			2	4	6	8	11	13	15	18	20	23	26	28	31	34	36	40	42	46	48	52	56	58	62	66	69	72	76	80	84
84				84			0	3	5	7	9	12	14	16	19	21	24	26	29	32	35	37	40	43	46	49	52	56	59	62	66	69	73	76	80
85				85				2	4	6	8	10	13	15	17	20	22	25	27	30	32	36	38	41	44	46	50	52	56	60	62	66	70	73	76
86				86				1	3	5	7	9	11	14	16	18	21	23	26	28	31	33	36	39	42	44	47	50	53	57	60	63	66	70	73
87				87					2	4	6	8	10	12	14	17	19	22	24	26	29	32	34	36	40	42	45	48	50	54	57	60	64	66	70
88				88					1	3	5	7	9	11	13	15	18	20	22	25	27	30	32	35	37	40	43	46	48	51	54	57	61	64	67
89				89						2	4	6	8	10	12	14	16	18	21	23	26	28	30	33	36	38	40	44	46	48	52	54	58	61	64
90				90					1		3	5	7	9	11	13	15	17	19	22	24	26	29	31	34	36	39	41	44	47	49	52	55	58	61
91				91							2	4	6	8	10	12	14	16	18	20	22	24	27	30	32	34	36	40	42	44	48	50	52	56	58
92				92							1	3	5	7	9	11	13	15	17	19	21	23	25	28	30	32	35	37	40	42	45	48	50	53	56
93				93								2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	36	38	40	42	46	48	50	54
94				94								1	3	5	7	9	10	12	14	16	18	20	22	24	27	29	31	33	36	38	41	43	46	49	51

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
95	1	2	4	6	8	10	11	13	15	17	19	21	23	25	28	30	32	34	36	38	42	44	46	50
96	0	2	3	5	7	8	10	12	14	16	18	20	22	24	26	28	30	32	35	37	39	42	44	47
97		1	2	4	6	8	9	11	13	14	16	18	20	22	24	26	28	31	33	36	38	40	42	44
98		0	2	3	5	7	8	10	12	14	15	17	19	21	23	25	27	29	32	34	36	38	40	43
99			1	3	4	6	8	9	11	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
100			1	2	4	5	7	8	10	12	13	15	17	19	21	22	24	26	28	30	33	35	37	39
101				2	3	4	6	8	9	10	12	14	16	18	20	22	23	25	27	29	31	34	36	38
102				1	2	4	5	7	8	10	11	13	15	16	18	20	22	24	26	28	30	32	34	36
103					2	3	4	6	8	9	10	12	14	16	17	19	20	22	24	26	28	30	32	34
104					1	2	4	5	7	8	10	11	13	14	16	18	20	21	23	25	27	29	31	33
105				105	1	2	3	4	6	8	9	10	12	14	15	16	18	20	22	24	26	28	30	32
106				106	0	1	3	4	5	7	8	10	11	13	14	16	17	19	21	23	24	26	28	30
107				107		1	2	4	4	6	8	9	10	12	14	15	16	18	20	22	24	24	26	28
108				108		0	2	3	4	5	7	8	10	11	12	14	16	17	19	20	22	24	25	27
109				109			1	2	4	5	6	8	9	10	12	13	14	16	18	20	20	22	24	26
110					110		1	2	3	4	6	7	8	10	11	12	14	15	17	18	20	21	23	25
111					111			2	2	4	5	6	8	8	10	12	13	14	16	18	18	20	22	24
112					112			1	2	3	4	6	7	8	9	11	12	14	15	16	18	19	21	23
113					113				2	2	4	5	6	8	8	10	12	12	14	16	17	18	20	22
114					114				1	2	3	5	6	7	8	9	11	12	13	15	16	18	19	20
115						115		1		2	3	4	6	6	8	8	10	12	12	14	16	16	18	20
116						116		0		1	2	4	5	6	7	8	9	11	12	13	14	16	17	19
117						117				1	2	3	4	6	6	8	8	10	12	12	14	15	16	18
118						118				1	2	3	4	5	6	7	8	9	11	12	13	14	16	17
119						119					2	2	4	4	6	6	8	8	10	12	12	14	14	16

USCOMM-WB-DC

DEPARTMENT OF COMMERCE - WEATHER BUREAU
Washington, D.C. Rev. March, 1958

RELATIVE HUMIDITY TABLE

Pressure 29 Inches

FOR USE AT ELEVATIONS BETWEEN 500 AND 2000 FEET ABOVE SEA LEVEL

Values in body of table are relative humidities (%) with respect to water for indicated values of wet- and dry-bulb temperature in degrees Fahrenheit.

HOW TO USE THE TABLE

Locate at the top of the column the reading corresponding to the wet-bulb temperature. Locate at the left side the reading corresponding to the dry-bulb temperature. Follow down the column under wet-bulb temperature, and across from the dry-bulb; at the intersection of these two columns read the relative humidity. For example:- if the dry-bulb temperature is 42° and the wet-bulb is 37°, the relative humidity is 62%. Dry-bulb 75°, wet-bulb 68°, relative humidity is 70%.

PRESSURE 29 INCHES
(between 500 and 2,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
25	4	14	26	37	48	61	72	84	96																			
26		7	17	28	39	50	62	73	85	97																		
27			9	19	30	41	52	63	74	86	97																	
28			2	12	23	32	43	54	65	75	86	98																
29				5	15	25	34	44	55	66	77	88	98															
30					8	17	27	37	46	56	67	77	88	99														
31					1	10	20	29	39	49	58	69	79	89	99													
32						4	13	22	31	41	50	60	69	79	90	100												
33							7	16	24	33	42	52	61	71	80	90	100											
34							1	9	18	27	35	44	53	62	72	81	90	100										
35								4	12	20	29	37	46	55	64	73	82	91	100								
36									6	14	23	31	39	48	56	65	73	82	91	100							
37									1	9	17	25	33	41	49	58	66	74	83	91	100						
38										4	12	19	27	35	43	51	59	67	75	83	91	100					
39											7	14	21	29	37	44	52	60	68	76	84	92	100				
40											2	9	16	23	31	38	46	53	61	68	76	84	92	100			
41												5	11	18	26	33	40	47	54	62	69	77	84	92	100		
42												0	7	14	21	28	34	41	48	55	62	70	77	85	92	100	
43													3	9	16	23	29	36	43	49	56	63	70	78	85	92	100
44														5	12	18	24	31	37	44	51	57	64	71	78	85	93	100

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
45	2	8	14	20	26	33	39	45	52	58	65	71	79	86	93	100																								
46		4	10	16	22	28	34	40	46	53	59	65	72	79	86	93	100																							
47		1	6	12	17	23	29	35	41	47	54	60	66	73	79	86	93	100																						
48			3	8	14	19	25	31	36	42	48	54	60	67	73	80	87	93	100																					
49				5	10	15	21	26	32	37	43	49	55	61	67	74	80	87	93	100																				
50			2	7	12	17	22	28	33	39	44	50	56	62	68	74	81	87	93	100																			
51				4	9	14	19	24	29	35	40	45	51	57	63	69	75	81	87	94	100																		
52				0	6	10	15	20	25	30	36	41	46	52	58	63	69	75	81	88	94	100																	
53					3	7	12	17	22	27	32	37	42	47	53	58	64	70	75	82	88	94	100																
54					0	5	9	14	18	23	28	33	38	43	48	54	59	65	70	76	82	88	94	100															
55					2	6	11	15	20	25	29	34	39	44	49	55	60	65	71	76	82	88	94	100															
56						4	8	12	17	21	26	31	35	40	45	50	55	61	66	71	77	82	88	94	100														
57						1	5	10	14	18	23	27	32	36	41	46	51	56	61	66	72	77	83	88	94	100													
58							3	7	11	15	20	24	28	33	38	42	47	52	57	62	67	72	77	83	89	94	100												
59							1	5	9	13	17	21	25	30	34	39	43	48	53	58	63	68	73	78	83	89	94	100											
60								2	6	10	14	18	22	27	31	35	40	44	49	53	58	63	68	73	78	84	89	94	100										
61								0	4	8	12	16	20	24	28	32	36	40	45	50	54	59	64	68	74	79	84	89	94	100									
62									2	6	9	13	17	21	25	29	33	37	41	46	50	55	60	64	69	74	79	84	89	94	100								
63									0	4	7	11	14	18	22	26	30	34	38	42	47	51	56	60	65	70	74	79	84	90	95	100							
64										2	5	9	12	16	20	23	27	31	35	39	43	48	52	56	61	66	70	75	79	85	90	95	100						
65											3	7	10	13	17	21	25	28	32	36	40	44	48	53	57	62	66	70	75	80	85	90	95	100					
66											1	5	8	11	15	18	22	26	29	33	37	41	45	49	53	58	62	66	71	76	80	85	90	95	100				
67												3	6	9	13	16	20	23	27	30	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95	100			
68												1	4	8	11	14	17	21	24	28	31	35	39	43	47	51	55	59	63	67	72	76	81	85	90	95	100		
69													3	6	9	12	15	19	22	25	29	32	36	40	44	47	51	55	59	64	68	72	77	81	86	90	95	100	

PRESSURE 29 INCHES
(between 500 and 2,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
70	1	4	7	10	13	17	20	23	26	30	33	37	40	44	48	52	56	60	64	68	72	77	81	86	90	95	100									
71		3	5	8	11	15	18	21	24	27	31	34	38	41	45	49	53	56	60	64	69	73	77	82	86	90	95	100								
72		1	4	7	10	13	16	19	22	25	28	32	35	39	42	46	49	53	57	61	65	69	73	78	82	86	91	95	100							
73			2	5	8	11	14	17	20	23	26	29	33	36	40	43	46	50	54	58	61	65	69	73	78	82	86	91	95	100						
74			1	4	7	9	12	15	18	21	24	27	30	34	37	40	44	47	51	54	58	62	66	70	74	78	82	86	91	95	100					
		75		2	5	8	11	13	16	19	22	25	28	31	34	38	41	44	48	51	55	59	63	66	70	74	78	82	87	91	96	100				
		76		1	4	6	9	12	14	17	20	23	26	29	32	35	38	42	45	48	52	55	59	63	67	70	74	78	83	87	91	96	100			
		77			2	5	7	10	13	15	18	21	24	27	30	33	36	39	42	46	49	52	56	60	63	67	71	75	79	83	87	91	96	100		
		78			1	4	6	9	11	14	16	19	22	25	28	31	34	37	40	43	46	50	53	57	60	64	67	71	75	79	83	87	91	96	100	
		79			0	2	5	7	10	12	15	17	20	23	26	29	31	34	37	41	44	47	50	54	57	60	64	68	71	75	79	83	87	91	96	100
			80		1		4	6	8	11	13	16	18	21	24	27	29	32	35	38	41	44	47	51	54	57	61	64	68	72	76	79	83	87	91	96
			81				2	5	7	9	12	14	17	19	22	24	28	30	33	36	39	42	45	48	52	54	58	62	64	68	72	76	80	84	88	92
			82				1	4	6	8	10	13	15	18	20	23	25	28	31	34	37	40	43	46	49	52	55	58	62	65	69	72	76	80	84	88
			83					2	5	7	9	11	14	16	19	21	24	26	29	32	34	38	40	44	46	50	52	56	58	62	66	70	72	76	80	84
			84					2	4	6	8	10	12	15	17	20	22	25	27	30	32	35	38	41	44	47	50	53	56	59	63	66	70	73	77	80
				85		3	5	7	9	11	13	16	18	20	23	26	28	30	33	36	38	42	44	48	50	54	56	60	63	66	70	74	77			
				86		2	4	6	8	10	12	14	17	19	21	24	26	29	31	34	37	39	42	45	48	51	54	57	60	63	67	70	74			
				87			3	5	7	9	11	13	15	18	20	22	24	27	30	32	34	38	40	42	46	48	52	54	58	60	64	67	70			
				88			2	4	6	8	10	12	14	16	18	21	23	25	28	30	33	35	38	41	43	46	49	52	55	58	61	64	67			
				89				3	5	7	9	11	13	15	17	19	22	24	26	28	31	34	36	38	42	44	46	50	52	56	58	62	64			
					90		0	2	4	6	8	10	12	14	16	18	20	22	24	27	29	32	34	37	39	42	44	47	50	53	56	59	62			
					91			1	3	5	7	8	10	12	14	16	18	21	23	25	28	30	32	34	38	40	42	44	48	50	54	56	59			
					92			0	2	4	6	8	9	11	13	15	17	19	22	24	26	28	30	33	35	38	40	43	45	48	51	54	57			
					93				1	3	5	7	8	10	12	14	16	18	20	22	24	26	28	31	34	36	38	40	44	46	48	52	54			
					94				1	2	4	6	8	9	11	13	15	17	19	21	23	25	27	29	32	34	36	39	41	44	46	49	52			

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
95	2	3	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	42	44	46	50
96	1	3	4	6	7	9	11	13	15	17	18	20	22	24	26	29	31	33	35	37	40	42	45	47
97		2	4	5	6	8	10	12	14	16	18	19	21	23	25	27	30	32	34	36	38	40	42	46
98		1	3	4	6	7	9	11	13	14	16	18	20	22	24	26	28	30	32	34	36	39	41	43
99			2	4	5	6	8	10	12	14	15	17	18	20	22	24	26	28	30	32	34	36	40	42
100			1	3	4	6	7	9	11	12	14	16	18	19	21	23	25	27	29	31	33	35	37	40
101				2	4	5	6	8	10	12	13	14	16	18	20	22	24	26	28	30	32	34	36	38
102			0	2	3	4	6	7	9	11	12	14	15	17	19	20	22	24	26	28	30	32	34	36
103				1	2	4	5	6	8	10	12	13	14	16	18	20	21	23	24	26	28	30	32	34
104				1	2	3	5	6	7	9	10	12	14	15	17	18	20	22	24	25	27	29	31	33
105			2	2	4	6	6	8	10	11	12	14	16	18	19	20	22	24	26	28	30	32		
106			1	2	3	5	6	7	9	10	12	13	15	16	18	20	21	23	25	27	28	30		
107				2	3	4	6	6	8	10	11	12	14	16	17	18	20	22	24	26	28	28		
108				1	2	4	5	6	7	9	10	12	13	15	16	18	19	21	22	24	26	28		
109					2	3	4	6	6	8	10	10	12	14	16	16	18	20	22	23	24	26		
110			0	1	3	4	5	6	7	9	10	11	13	14	16	17	19	20	22	24	25			
111				1	2	4	4	6	7	8	10	10	12	14	14	16	18	20	20	22	24			
112				0	2	3	4	5	6	8	9	10	11	13	14	15	17	18	20	21	23			
113					1	2	4	4	6	7	8	10	10	12	14	14	16	18	18	20	22			
114					1	2	3	4	5	6	8	9	10	11	13	14	15	17	18	19	21			

USCOMM-WB-DC

TA 454-0-1C

DEPARTMENT OF COMMERCE - WEATHER BUREAU
Washington, D.C. Rev. March, 1958

RELATIVE HUMIDITY TABLE

Pressure 27 Inches

FOR USE AT ELEVATIONS BETWEEN 2000 AND 4000 FEET ABOVE SEA LEVEL

Values in body of table are relative humidities (%) with respect to water for indicated values of wet- and dry-bulb temperature in degrees Fahrenheit.

HOW TO USE THE TABLE

Locate at the top of the column the reading corresponding to the wet-bulb temperature. Locate at the left side the reading corresponding to the dry-bulb temperature. Follow down the column under wet-bulb temperature, and across from the dry-bulb; at the intersection of these two columns read the relative humidity. For example:- if the dry-bulb temperature is 42° and the wet-bulb is 37°, the relative humidity is 64%. Dry-bulb 75°, wet-bulb 68°, relative humidity is 71%.

PRESSURE 27 INCHES
(between 2,000 and 4,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
25	8	18	29	39	51	62	73	85	96																								
26	1	11	20	31	42	52	63	75	85	97																							
27		3	13	23	33	44	54	64	75	87	97																						
28			6	16	25	35	45	56	66	76	87	98																					
29				9	19	28	37	47	57	67	78	88	98																				
			30	3	12	21	30	40	48	58	68	78	89	99																			
			31		5	14	23	32	41	51	60	70	80	89	99																		
			32			8	17	25	34	43	52	61	71	80	90	100																	
			33			3	11	19	27	36	45	54	63	72	81	91	100																
			34				5	13	21	30	38	46	55	64	73	82	91	100															
				35		0	8		16	24	32	40	48	56	65	74	82	91	100													
				36			3		10	18	26	34	42	50	58	66	75	83	91	100												
				37					5	13	20	28	35	43	51	59	67	75	84	92	100											
				38					1	8	15	22	30	37	45	53	61	68	76	84	92	100										
				39						3	10	17	24	32	39	47	54	62	69	76	84	92	100									
									40		6	13	19	26	33	41	48	55	62	69	77	84	92	100								
									41		2	8	15	22	28	35	42	49	56	63	70	77	85	92	100							
									42			4	11	17	24	30	37	44	50	57	64	71	78	85	92	100						
									43			1	7	13	19	26	32	38	45	51	58	65	71	78	86	92	100					
									44				3	9	15	21	27	33	40	46	52	59	66	72	79	86	93	100				

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
45	5	11	17	23	29	35	41	47	53	60	66	72	79	86	93	100																								
46	2	8	13	19	24	30	36	42	48	54	60	67	73	80	86	93	100																						
47		4	10	15	20	26	32	37	43	49	55	61	67	74	80	86	93	100																				
48		1	6	11	17	22	27	33	39	44	50	56	62	68	74	80	87	93	100																			
49			3	8	13	18	24	29	34	40	45	51	57	63	69	74	81	87	93	100																		
																					50	51	52	53	54													
	50		0	5	10	15	20	25	30	35	41	46	52	57	63	69	75	81	87	94	100																	
	51			2	7	12	17	21	26	31	37	42	47	53	58	64	70	76	82	88	94	100																
	52				4	9	13	18	23	28	33	38	43	48	53	59	65	70	76	82	88	94	100															
	53				2	6	10	15	20	24	29	34	39	44	49	54	60	65	71	76	82	88	94	100														
	54					3	8	12	17	21	26	30	35	40	45	50	55	60	66	71	77	82	88	94	100													
																										55	56	57	58	59									
					55	1	5	9	14	18	23	27	31	36	41	46	51	56	61	66	72	77	82	88	94	100												
					56		3	7	11	15	20	24	28	33	37	42	47	52	57	62	67	72	77	83	89	94	100											
					57		0	4	8	12	17	21	25	30	34	38	43	48	52	57	62	67	72	78	83	89	94	100										
					58			2	6	10	14	18	22	27	31	35	39	44	49	53	58	63	68	73	78	83	89	94	100								
					59			0	4	8	11	15	19	24	28	32	36	40	45	49	54	59	64	68	74	78	84	89	95	100							
																															60	61	62	63	64					
						60		2	5		9	13	17	21	25	29	33	37	41	46	50	55	59	64	69	74	79	84	89	95	100						
						61			3		7	11	14	18	22	26	30	34	38	42	46	51	55	60	65	69	74	79	84	90	95	100					
						62			1		5	8	12	16	19	23	27	31	35	39	43	47	52	56	61	65	70	75	79	84	90	95	100				
						63					3	6	10	13	17	21	24	28	32	36	40	44	48	52	57	61	66	70	75	80	85	90	95	100			
						64					1	5	8	11	15	18	22	26	29	33	37	41	45	49	53	57	62	66	71	75	80	85	90	95	100		
																																				65	66	67	68	69
										65		3	6	9	12	16	19	23	27	30	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95	100	
										66		1	4	7	11	14	17	21	24	28	31	35	39	42	46	50	54	59	63	67	72	76	81	85	90	95	100
										67			3	6	9	12	15	18	22	25	29	32	36	40	43	47	51	55	59	63	68	72	76	81	85	90	95	100
										68			1	4	7	10	13	16	20	23	26	30	33	37	40	44	48	52	56	60	64	68	72	77	81	86	90	95	100
										69				2	5	8	11	14	17	21	24	27	31	34	38	41	45	49	52	56	60	64	68	73	77	81	86	91	95	100

PRESSURE 27 INCHES
(between 2,000 and 4,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
70	1	4	7	10	13	16	19	22	25	28	32	35	39	42	46	49	53	57	61	65	69	73	77	82	86	91	95	100									
71		2	5	8	11	14	17	20	23	26	29	32	36	39	43	46	50	54	57	61	65	69	73	77	82	86	91	95	100								
72		1	4	6	9	12	15	18	21	24	27	30	33	37	40	44	47	50	54	58	62	66	70	74	78	82	86	92	95	100							
73			2	5	8	10	13	16	19	22	25	28	31	34	38	41	44	48	51	55	59	62	66	70	74	78	82	87	91	95	100						
74			1	4	6	9	12	14	17	20	23	26	29	32	35	38	42	45	48	52	55	59	63	66	70	74	78	83	87	91	95	100					
75				2	5	7	10	13	15	18	21	24	27	30	33	36	39	42	46	49	52	56	59	63	67	71	75	79	83	87	91	96	100				
76				1	4	6	9	11	14	16	19	22	25	27	30	34	37	40	43	46	50	53	56	60	64	67	71	75	79	83	87	91	96	100			
77					2	5	7	10	12	15	17	20	23	25	28	31	34	37	40	44	47	50	53	57	60	64	68	71	75	79	83	87	91	96	100		
78					1	4	6	8	11	13	16	18	21	24	26	29	32	35	38	41	44	47	51	54	58	61	64	68	72	75	79	83	87	91	96	100	
79					0	2	5	7	9	12	14	17	19	22	25	27	30	33	36	39	42	45	48	51	54	58	61	65	68	72	76	80	84	88	92	96	100
80					1	4	6	8	10	13	15	18	20	23	26	28	31	34	36	39	42	45	49	52	55	58	62	65	69	72	76	80	84	88	92	96	
81						2	5	7	9	11	14	16	19	21	24	26	29	32	34	37	40	43	46	50	52	56	58	62	66	69	72	76	80	84	88	92	
82						1	4	6	8	10	12	15	17	20	22	24	27	30	32	35	38	41	44	47	50	53	56	59	62	66	69	73	77	80	84	88	
83								2	5	7	9	11	13	16	18	20	23	25	28	30	33	36	38	42	44	48	50	54	56	60	62	66	70	74	77	80	84
84								2	4	6	8	10	12	14	17	19	21	24	26	29	31	34	36	39	42	45	48	51	54	57	60	63	67	70	74	77	81
85									3	5	7	9	11	13	15	18	20	22	24	27	30	32	34	37	40	42	46	48	52	54	58	60	64	67	70	74	77
86									2	4	6	8	10	12	14	16	18	21	23	25	28	30	33	35	38	40	43	46	49	52	55	58	61	64	67	71	74
87									1	3	5	7	9	11	13	15	17	19	22	24	26	28	30	34	36	38	41	44	46	50	52	56	58	62	64	68	71
88									0	2	4	6	8	10	12	14	16	18	20	22	24	27	29	31	34	36	39	42	44	47	50	53	56	59	62	65	68
89										1	3	5	7	8	10	12	14	16	18	20	23	25	28	30	32	34	37	40	42	44	48	50	54	56	59	62	65
90										0	2	4	6	8	9	11	13	15	17	19	21	24	26	28	30	33	35	38	40	43	45	48	51	54	56	59	62
91											1	3	5	6	8	10	12	14	16	18	20	22	24	26	28	31	34	36	38	40	44	46	48	52	54	56	60
92											1	2	4	6	7	9	11	13	15	17	19	21	23	25	27	29	32	34	36	39	41	44	46	49	52	54	57
93												2	3	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	42	44	46	50	52	54
94												1	3	4	6	7	9	11	13	15	16	18	20	22	24	26	28	31	33	35	37	40	42	45	47	50	52

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
95	2	4	5	6	8	10	12	14	16	17	19	21	23	25	27	29	32	34	36	38	40	42	46	48	50
96	1	3	4	6	7	9	11	13	14	16	18	20	22	24	26	28	30	32	34	36	38	41	43	46	48
97		2	4	5	6	8	10	12	14	15	16	18	20	22	24	26	28	30	32	34	36	38	42	44	46
98		1	3	4	6	7	9	11	12	14	16	17	19	21	23	25	27	29	31	33	35	37	39	42	44
99			2	4	5	6	8	10	12	13	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
100		0	2	3	4	6	7	9	11	12	14	15	17	19	21	22	24	26	28	30	32	34	36	38	40
101			1	2	4	5	6	8	10	12	12	14	16	18	20	22	22	24	26	28	30	32	34	36	38
102			1	2	3	5	6	7	9	10	12	13	15	17	18	20	22	23	25	27	29	31	33	35	37
103				2	2	4	6	6	8	10	11	12	14	16	18	19	20	22	24	26	28	30	32	34	36
104				1	2	3	5	6	7	9	10	12	13	15	16	18	20	21	23	25	26	28	30	32	34
105					2	3	4	6	6	8	10	11	12	14	16	17	18	20	22	24	26	27	28	30	32
106					1	2	4	5	6	7	9	10	12	13	14	16	18	19	21	22	24	26	28	29	31
107						2	3	4	6	6	8	10	10	12	14	15	16	18	20	22	22	24	26	28	30
108						1	3	4	5	6	7	9	10	11	13	14	16	17	19	20	22	23	25	27	29
109							2	4	4	6	6	8	10	10	12	14	14	16	18	20	20	22	24	26	28
110						3	4	5	6	7	9	10	11	13	14	15	17	18	20	21	23	24	26		
111							4	4	6	7	8	10	10	12	14	14	16	18	18	20	22	24	24		
112								4	5	6	8	9	10	11	12	14	15	17	18	19	21	22	24		
113									4	6	7	8	10	10	12	13	14	16	18	18	20	22	22		
114										5	6	8	9	10	11	12	14	15	16	18	19	20	22		

USCOMM-WB-DC

DEPARTMENT OF COMMERCE - WEATHER BUREAU
Washington, D.C. Rev. March, 1958

RELATIVE HUMIDITY TABLE

Pressure 25 Inches

FOR USE AT ELEVATIONS BETWEEN 4000 AND 6000 FEET ABOVE SEA LEVEL

Values in body of table are relative humidities (%) with respect to water for indicated values of wet- and dry-bulb temperature in degrees Fahrenheit.

HOW TO USE THE TABLE

Locate at the top of the column the reading corresponding to the wet-bulb temperature. Locate at the left side the reading corresponding to the dry-bulb temperature. Follow down the column under wet-bulb temperature, and across from the dry-bulb; at the intersection of these two columns read the relative humidity. For example:- if the dry-bulb temperature is 42° and the wet-bulb is 37°, the relative humidity is 65%. Dry-bulb 75°, wet-bulb 68°, relative humidity is 71%.

PRESSURE 25 INCHES
(between 4,000 and 6,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
20	9	21	33	45	56	68	82	94																																													
21	1	12	24	35	46	57	70	82	94																																										
22		4	14	26	37	47	59	71	82	95																																									
23			7	17	28	38	50	61	72	84	95																																								
24				10	20	30	40	51	62	73	84	96																																							
25				3	13	22	32	42	53	64	74	85	96																																						
26					5	15	24	34	44	54	65	76	86	97																																					
27						8	17	26	36	46	55	66	76	87	97																																				
28						2	11	20	28	38	48	58	68	77	87	98																																			
29							4	13	22	30	39	49	59	69	79	89	98																																			
30								7	16	24	33	42	51	60	69	79	89	99																																		
31								1	10	18	26	35	44	53	62	71	81	89	99																																	
32									4	12	20	28	37	45	54	63	72	81	90	100																																	
33										7	15	23	31	39	47	56	64	73	82	91	100																																	
34										2	9	17	25	32	41	49	57	65	74	83	91	100																																	
35											4	12	19	27	34	42	50	58	67	75	83	92	100																																	
36												7	14	21	29	36	44	52	60	68	76	84	92	100																																	
37												3	9	16	24	31	38	46	53	61	69	77	84	92	100																																	
38													5	12	19	26	33	40	47	55	62	69	77	84	92	100																																	
39													1	7	14	21	28	34	42	49	56	63	70	77	85	92	100																																	

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
40	3	10	16	23	29	36	43	50	57	64	70	78	85	92	100																								
41		6	12	18	25	31	38	45	51	58	64	71	79	85	93	100																							
42		2	8	14	20	27	33	39	46	52	59	65	72	79	86	93	100																						
43			4	10	16	22	28	34	41	47	53	59	66	72	79	86	93	100																					
44			1	7	12	18	24	30	36	42	48	54	60	67	73	80	86	93	100																				
45		45		3	9	15	20	26	32	37	43	49	55	61	67	73	80	87	93	100																		
46		46		0	6	11	17	22	27	33	38	44	50	56	62	68	74	81	87	93	100																	
47					3	8	13	18	23	29	34	39	45	51	57	62	68	74	81	87	93	100																
48						5	10	15	20	25	30	35	40	46	52	57	63	69	75	81	87	94	100															
49						2	7	12	16	21	26	31	36	42	47	52	58	64	69	75	81	88	94	100														
50					4	9	13	18	23	28	33	38	43	48	53	59	64	70	76	82	88	94	100														
51					1	6	10	15	20	24	29	34	39	44	49	54	60	65	71	76	82	88	94	100													
52						3	8	12	16	21	26	30	35	40	45	50	55	60	66	71	77	83	88	94	100												
53						1	5	9	14	18	22	27	32	36	41	46	51	56	61	66	71	77	83	88	94	100										
54							3	7	11	15	19	24	28	33	37	42	47	52	57	62	67	72	77	83	88	94	100									
55						0		4	8	12	17	21	25	29	34	38	43	48	53	57	62	67	72	78	83	89	94	100								
56								2	6	10	14	18	22	26	31	35	39	44	49	53	58	63	68	73	78	83	89	94	100							
57								0	4	8	11	15	19	23	28	32	36	40	45	49	54	59	63	68	73	78	84	89	94	100						
58									2	5	9	13	17	21	25	29	33	37	41	46	50	55	59	64	69	74	79	84	89	95	100					
59										3	7	11	14	18	22	26	30	34	38	42	46	51	56	60	65	69	74	79	84	90	95	100				
60										1	5	8	12	16	19	23	27	31	35	39	43	47	52	56	61	65	70	74	79	85	90	95	100			
61											3	6	10	13	17	21	24	28	32	36	40	44	48	52	57	61	66	70	75	80	85	90	95	100		
62											1	5	8	11	15	18	22	25	29	33	37	41	45	49	53	57	62	66	71	75	80	85	90	95	100	
63												3	6	9	13	16	19	23	26	30	34	38	42	45	49	54	58	62	67	71	76	80	85	90	95	100
64												1	4	7	11	14	17	21	24	28	31	35	39	42	46	50	54	59	63	67	72	76	81	85	90	95	100

PRESSURE 25 INCHES
(between 4,000 and 6,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
65	3	6	9	12	15	18	22	25	29	32	36	39	43	47	51	55	59	63	68	72	76	81	86	90	95	100														
66	1	4	7	10	13	16	20	23	26	30	33	37	40	44	48	52	56	60	64	68	72	77	81	86	90	95	100													
67		2	5	8	11	14	18	21	24	27	31	34	38	41	45	48	52	56	60	64	68	73	77	81	86	90	95	100												
68		1	4	7	10	13	16	19	22	25	28	32	35	38	42	45	49	53	57	61	65	69	73	77	81	86	91	95	100											
69			2	5	8	11	14	17	20	23	26	29	32	36	39	43	46	50	54	57	61	65	69	73	78	82	86	91	95	100										
70		1	4	6	9	12	15	18	21	24	27	30	33	37	40	43	47	51	54	58	62	66	70	74	78	82	86	91	95	100										
71			2	5	8	10	13	16	19	22	25	28	31	34	37	41	44	48	51	55	59	62	66	70	74	78	82	87	91	96	100									
72			1	4	6	9	12	14	17	20	23	26	29	32	35	38	42	45	48	52	55	59	63	66	70	74	78	83	87	91	96	100								
73				2	5	7	10	13	15	18	21	24	27	30	33	36	39	42	45	49	52	56	60	63	67	71	75	79	83	87	91	96	100							
74				1	4	6	9	11	14	16	19	22	25	28	30	34	37	40	43	46	49	53	56	60	63	67	71	75	79	83	87	91	96	100						
75					2	5	7	10	12	15	17	20	23	26	28	31	34	37	40	44	47	50	53	57	60	64	68	71	75	79	83	87	91	96	100					
76						4	6	8	11	13	15	18	21	24	26	29	32	35	38	41	44	47	51	54	57	61	64	68	72	75	79	83	87	91	96	100				
77							5	7	9	12	14	17	19	22	25	27	30	33	36	39	42	45	48	51	54	58	61	65	68	72	76	79	83	87	91	96	100			
78							4	6	8	10	13	15	18	20	23	25	28	31	34	36	39	42	45	48	52	55	58	62	65	69	72	76	80	84	88	92	96	100		
79							3	5	7	9	11	14	16	19	21	24	26	29	32	34	37	40	43	46	49	52	55	59	62	66	69	72	76	80	84	88	92	96	100	
80						2	4	6	8	10	12	15	17	20	22	25	27	30	32	35	38	41	44	47	50	53	56	59	62	66	69	73	76	80	84	88	92	96		
81							3	5	7	9	11	13	16	18	20	23	26	28	30	33	36	38	42	44	48	50	54	56	60	62	66	70	73	76	80	84	88	92		
82							2	4	6	8	10	12	14	17	19	21	24	26	29	31	34	37	39	42	45	48	51	54	57	60	63	67	70	73	77	81	84	88		
83							1	3	5	7	9	11	13	15	18	20	22	24	27	30	32	34	38	40	42	46	48	52	54	58	60	64	67	70	74	77	81	84		
84							0	2	4	6	8	10	12	14	16	18	21	23	25	28	30	32	35	38	40	43	46	49	52	55	58	61	64	67	71	74	77	81		
85								1	3	5	7	9	11	13	15	17	19	22	24	26	28	30	33	36	38	40	44	46	50	52	55	58	61	64	68	71	74	78		
86								0	2	4	6	8	10	12	14	16	18	20	22	24	27	29	31	34	36	39	41	44	47	50	52	55	58	61	65	68	71	74		
87									1	3	5	7	8	10	12	14	16	18	20	23	25	28	30	32	34	37	40	42	44	48	50	52	56	58	62	65	68	72		
88									1	2	4	6	8	9	11	13	15	17	19	21	24	26	28	30	33	35	38	40	43	45	48	51	53	56	59	62	65	68		
89										2	3	5	7	8	10	12	14	16	18	20	22	24	26	28	31	34	36	38	40	44	46	48	51	54	56	60	62	66		

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
90	1	2	4	6	8	9	11	13	15	17	19	21	23	25	27	29	32	34	36	39	41	44	46	49	51	54	57	60	63
91		2	3	5	7	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	42	44	46	50	52	54	58	60
92		1	3	4	6	8	9	11	13	15	16	18	20	22	24	26	28	31	33	35	37	40	42	45	47	50	52	55	58
93			2	4	5	7	8	10	12	14	16	17	19	21	23	25	27	29	32	34	36	38	40	42	46	48	50	52	56
94			1	3	4	6	8	9	11	13	14	16	18	20	22	24	26	28	30	32	34	36	38	41	43	46	48	51	53
95		1	2		4	5	6	8	10	12	14	15	16	18	20	22	24	26	28	30	32	34	36	38	42	44	46	48	51
96		0	2		3	4	6	7	9	11	12	14	16	17	19	21	23	25	27	29	31	33	35	37	39	42	44	46	49
97			1		2	4	5	6	8	10	12	13	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
98			0		2	3	5	6	7	9	11	12	14	15	17	19	21	22	24	26	28	30	32	34	36	38	40	43	45
99					1	2	4	6	7	8	10	12	12	14	16	18	20	22	22	24	26	28	30	32	34	36	36	40	43
100				100	1	2	3	5	6	8	9	10	12	13	15	17	18	20	22	23	25	27	29	31	33	35	37	39	41
101				101		2	2	4	6	7	8	10	11	12	14	16	18	19	20	22	24	26	28	30	32	34	36	38	40
102				102		1	2	3	5	6	8	9	10	12	13	15	16	18	20	21	23	25	26	28	30	32	34	36	38
103				103		1	2	3	4	6	7	8	10	11	12	14	15	17	18	20	22	24	26	26	28	30	32	34	36
104				104		0	1	2	4	5	6	8	9	10	12	13	14	16	18	19	21	22	24	26	27	29	31	33	35
105					1	2	3			4	6	7	8	10	10	12	14	15	16	18	20	22	22	24	26	28	30	32	34
106						1	3			4	5	6	8	9	10	11	13	14	16	17	19	20	22	23	25	27	28	30	32
107							2			4	4	6	7	8	10	10	12	14	14	16	18	20	20	22	24	26	28	28	30
108										3	4	5	6	8	9	10	11	13	14	15	17	18	20	21	23	24	26	28	29
109											4	4	6	7	8	10	10	12	14	14	16	18	18	20	22	24	24	26	28

USCOMM-WB-DC

DEPARTMENT OF COMMERCE - WEATHER BUREAU
Washington, D.C. Rev. March, 1958

RELATIVE HUMIDITY TABLE

Pressure 23 Inches

FOR USE AT ELEVATIONS ABOVE 6000 FEET ABOVE SEA LEVEL

Values in body of table are relative humidities (%) with respect to water for indicated values of wet- and dry-bulb temperature in degrees Fahrenheit.

HOW TO USE THE TABLE

Locate at the top of the column the reading corresponding to the wet-bulb temperature. Locate at the left side the reading corresponding to the dry-bulb temperature. Follow down the column under wet-bulb temperature, and across from the dry-bulb; at the intersection of these two columns read the relative humidity. for example:- if the dry-bulb temperature is 42° and the wet-bulb is 37°, the relative humidity is 67%. Dry-bulb 75°, wet-bulb 68°, relative humidity is 72%.

PRESSURE 23 INCHES
(above 6,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	0	11	25	37	50	64	78	91																			
16		2	14	27	39	52	65	78	92																		
17			5	18	30	41	54	66	79	92																	
18				8	19	32	44	56	68	80	93																
19					11	22	34	46	57	69	81	93															
			20		3	14	24	36	47	59	70	82	94														
			21			6	16	27	38	49	59	71	82	94													
			22				9	19	29	40	50	61	72	83	95												
			23				2	11	21	31	41	51	62	73	84	95											
			24					5	14	24	34	43	54	64	75	85	96										
							25		8	16	26	36	45	55	65	75	86	96									
							26		1	10	18	28	37	46	56	66	76	86	97								
							27			4	13	21	30	39	49	57	67	77	88	97							
							28				6	15	23	32	41	50	59	69	78	88	98						
							29				1	9	17	26	34	42	51	61	70	79	89	98					
								30		4			11	20	28	36	45	53	62	71	80	89	99				
								31					6	14	22	30	38	46	55	64	72	81	90	99			
								32					1	9	16	24	32	40	48	56	65	73	82	91	100		
								33						4	11	18	26	34	41	49	57	66	74	83	92	100	
								34							6	13	21	28	35	43	51	59	67	75	84	92	100

WET BULB TEMPERATURES

DRY BULB TEMPERATURES

	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
35	2	9	16	23	30	37	45	52	60	68	76	84	92	100																								
36		4	11	18	25	32	39	46	54	61	69	77	84	92	100																							
37		0	7	13	20	27	34	41	48	55	63	70	78	85	93	100																						
38			3	9	16	22	29	36	42	49	57	64	71	78	85	93	100																					
39				5	12	18	24	31	37	44	51	57	65	71	78	85	93	100																				
			40	2	8	14	20	26	32	39	45	52	58	65	72	79	85	93	100																		
			41		4	10	16	22	28	34	41	47	53	59	66	72	79	86	93	100																	
			42		1	6	12	18	24	30	36	42	48	54	60	67	73	80	86	93	100																
			43			3	8	14	20	26	31	37	43	49	55	61	67	73	80	87	93	100															
			44			0	5	11	16	22	27	33	39	44	50	56	62	68	74	80	87	94	100														
				45		2	7		13	18	24	28	34	40	45	51	57	62	68	74	81	87	94	100												
				46			4		9	15	20	25	30	35	41	46	52	57	63	69	75	81	87	94	100											
				47			2		6	11	17	21	26	31	37	42	47	53	58	64	70	75	81	87	94	100										
				48					4	9	13	18	23	28	32	38	43	48	54	59	65	70	76	82	88	94	100									
				49					1	6	10	15	20	24	29	34	39	44	49	54	60	65	71	76	82	88	94	100								
					50		3	8	12	17	21	26	30	35	40	45	50	55	60	66	71	77	82	88	94	100									
					51		1	5	9	14	18	23	27	32	36	41	46	51	56	61	66	72	77	83	88	94	100								
					52			3	7	11	15	20	24	28	33	37	42	47	52	57	61	67	72	78	83	89	94	100							
					53			1	5	9	13	17	21	25	29	34	38	43	48	52	57	62	67	72	78	83	89	94	100						
					54				2	6	10	14	18	22	26	31	35	39	44	48	53	58	63	68	73	78	83	89	94	100					
								55		4	8	12	16	20	24	28	32	36	40	45	49	54	59	63	69	73	78	84	89	95	100				
								56			6	9	13	17	21	25	29	33	37	41	46	50	55	59	64	69	74	79	84	89	95	100			
								57				7	11	14	18	22	26	30	34	38	42	47	51	55	60	65	69	74	79	84	89	95	100		
								58					9	12	16	20	23	27	31	35	39	43	48	52	56	61	65	70	74	79	84	89	95	100	
								59						10	14	17	21	24	28	32	36	40	44	48	53	57	61	65	70	75	80	85	90	95	100

PRESSURE 23 INCHES

(above 6,000 feet)

WET BULB TEMPERATURES

DRY BULB TEMPERATURES	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73
60	1	5	8	11	15	18	22	26	29	33	37	41	45	49	53	57	62	66	71	75	80	85	90	95	100													
61		3	6	9	13	16	20	23	27	30	34	38	42	46	50	54	58	62	67	71	76	80	85	90	95	100												
62		1	4	8	11	14	17	21	24	28	31	35	39	43	46	50	54	59	63	67	72	76	81	85	90	95	100											
63			3	6	9	12	15	19	22	25	29	32	36	40	43	47	51	55	59	63	67	72	76	81	85	90	95	100										
64			1	4	7	10	13	16	20	23	26	30	33	37	40	44	48	52	56	60	64	68	72	77	81	86	90	95	100									
65		65		3	6	9	12	15	18	21	24	27	31	34	38	41	45	49	52	56	60	64	69	73	77	81	86	91	95	100								
66		66		1	4	7	10	13	16	19	22	25	28	32	35	38	42	46	49	53	57	61	65	69	73	77	82	86	91	95	100							
67		67			3	5	8	11	14	17	20	23	26	29	33	36	39	43	46	50	54	57	61	65	69	73	77	82	86	91	95	100						
68		68			1	4	7	9	12	15	18	21	24	27	30	33	37	40	44	47	50	54	58	62	66	70	74	78	82	86	91	95	100					
69		69			0	3	5	8	11	13	16	19	22	25	28	31	34	37	41	44	48	51	55	58	62	66	70	74	78	82	87	91	96	100				
70			70		1	4	6	9		12	14	17	20	23	26	29	32	35	38	42	45	48	52	55	59	63	66	70	74	78	83	87	91	96	100			
71			71		0	3	5	8		10	13	15	18	21	24	27	30	33	36	39	42	46	49	52	56	59	63	67	71	75	79	83	87	91	96	100		
72			72			1	4	6		9	11	14	16	19	22	25	28	31	34	37	40	43	46	50	53	56	60	64	67	71	75	79	83	87	91	96	100	
73			73			0	3	5		7	10	12	15	17	20	23	26	29	31	34	37	40	44	47	50	53	57	60	64	68	71	75	79	83	87	91	96	100
74			74				2	4		6	9	11	13	16	18	21	24	27	29	32	35	38	41	44	47	51	54	57	61	64	68	72	75	79	83	87	91	96
75				75		1	3			5	7	10	12	14	17	19	22	25	27	30	33	36	39	42	45	48	51	55	58	61	65	68	72	76	80	83	87	91
76				76			2			4	6	8	11	13	15	18	20	23	25	28	31	34	37	39	42	45	49	52	55	58	62	65	69	72	76	80	84	88
77				77			1			3	5	7	9	12	14	16	19	21	24	26	29	32	34	37	40	43	46	49	52	55	59	62	66	69	72	76	80	84
78				78						2	4	6	8	10	13	15	17	20	22	25	27	29	32	35	38	41	44	47	50	53	56	59	62	66	69	73	76	80
79				79						1	3	5	7	9	11	14	16	18	21	23	25	28	30	33	36	39	41	44	47	50	53	56	60	63	66	70	73	77
80					80					0	2	4	6	8	10	12	15	17	19	21	24	26	29	31	34	37	39	42	45	48	51	54	57	60	63	67	70	73
81					81						1	3	5	7	9	11	13	16	18	20	22	24	27	30	32	34	38	40	42	46	48	52	54	58	60	64	67	70
82					82						0	2	4	6	8	10	12	14	16	19	21	23	25	28	30	33	35	38	40	43	46	49	52	55	58	61	64	67
83					83							1	3	5	7	9	11	13	15	17	20	22	24	26	28	30	34	36	38	41	44	46	50	52	55	58	61	64
84					84							1	2	4	6	8	10	12	14	16	18	20	22	24	27	29	31	34	36	39	42	44	47	50	53	55	58	61

WET BULB TEMPERATURES

DRY BULB TEMPERATURES	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
85	2	3	5	7	9	11	12	14	16	19	21	23	25	28	30	32	34	37	40	42	44	48	50	53	56	58	62	65	68	71	74	78
86	1	2	4	6	8	10	12	13	15	17	20	22	24	26	28	30	33	35	38	40	43	45	48	50	53	56	59	62	65	68	71	75
87		2	3	5	7	9	10	12	14	16	18	20	22	24	26	28	31	34	36	38	40	44	46	48	50	54	56	60	62	66	68	72
88		1	3	4	6	8	10	11	13	15	17	19	21	23	25	27	29	32	34	36	39	41	44	46	49	51	54	57	60	63	66	69
89			2	4	5	7	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	42	44	46	50	52	54	58	60	63	66
90			1	3	4	6	8	9	11	13	15	17	18	20	22	24	26	28	31	33	35	37	40	42	45	47	50	52	55	58	61	63
91			1	2	4	5	7	8	10	12	14	16	18	19	21	23	25	27	29	32	34	36	38	40	42	46	48	50	52	56	58	61
92			0	2	3	5	6	8	9	11	13	14	16	18	20	22	24	26	28	30	32	34	36	38	41	43	46	48	51	53	56	58
93				1	2	4	6	7	8	10	12	14	15	17	18	20	22	24	26	28	30	32	34	36	38	42	44	46	48	51	54	56
94				0	2	3	5	6	8	9	11	12	14	16	18	19	21	23	25	27	29	31	33	35	37	39	42	44	46	49	51	54
95				0	1	2	4	6	7	8	10	12	13	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	50	52
96				0	1	2	3	5	6	8	9	11	12	14	15	17	19	21	22	24	26	28	30	32	34	36	38	40	43	45	47	50
97					1	2	3	4	6	7	8	10	12	13	14	16	18	20	22	23	24	26	28	30	32	34	36	38	40	43	46	48
98						1	2	4	5	6	8	9	11	12	14	15	17	18	20	22	24	25	27	29	31	33	35	37	39	41	43	46
99							2	3	4	6	7	8	10	12	12	14	16	18	19	20	22	24	26	28	30	32	34	36	38	40	42	44
100					100		1	2	4	5	6	8	9	10	12	13	15	16	18	20	21	23	25	26	28	30	32	34	36	38	40	42
101					101		1	2	3	4	6	7	8	10	11	12	14	16	17	18	20	22	24	26	26	28	30	32	34	36	38	40
102					102		0	1	3	4	5	6	8	9	10	12	13	15	16	18	19	21	22	24	26	27	29	31	33	35	37	39
103					103			1	2	4	4	6	7	8	10	11	12	14	16	16	18	20	22	22	24	26	28	30	32	34	36	38
104					104				2	3	4	5	6	8	9	10	12	13	14	16	17	19	20	22	23	25	27	28	30	32	34	36

USCOMM-WB-DC

TABLE 1 For All Chisholm Anemometers

For Use with Time Interval Near 1 1/2 Hours

No. of Counts	1 hour 15 min	1 hour 20 min	1 hour 25 min	1 hour 30 min	1 hour 35 min	1 hour 40 min	1 hour 45 min
50	1	1	1	1	1	1	1
100	2	2	2	2	2	2	2
150	3	3	3	3	3	3	3
200	4	4	4	4	4	4	3
250	5	5	5	4	4	4	4
300	6	6	5	5	5	5	4
350	6	6	6	6	5	5	5
400	7	7	6	6	6	6	5
450	8	7	7	7	6	6	6
500	8	8	8	7	7	7	7
550	9	9	8	8	8	8	7
600	10	9	9	8	8	8	7
650	11	10	9	9	9	8	8
700	11	10	10	9	9	9	8
750	12	11	10	10	10	9	9
800	13	12	11	10	10	10	9
850	14	12	12	11	11	10	10
900	14	13	12	12	11	11	10
950	15	14	13	12	12	11	11
1000	16	14	14	13	12	12	11
1050	16	15	15	14	13	12	12
1100	17	16	15	14	13	13	12
1150	17	16	16	15	14	13	13
1200	18	17	16	15	15	14	13
1250	19	18	17	16	15	14	14
1300	20	18	18	16	16	15	14
1350	20	19	18	17	16	15	15
1400	21	20	18	18	17	16	15
1450	22	20	19	18	17	17	16
1500	22	21	20	19	18	17	16
1550	23	22	20	19	19	18	17
1600	24	22	21	20	19	18	17
1650	25	23	22	20	20	19	18
1700	26	24	22	21	20	19	18
1750	27	24	23	22	21	20	19
1800	27	25	24	22	21	20	19
1850	28	26	24	23	22	21	20
1900	28	26	25	23	22	21	21
1950	29	27	25	24	23	22	21
2000	30	28	26	25	24	22	22
2050	30	28	27	25	24	23	22
2100	31	28	27	25	24	23	22
2150	32	30	28	26	25	24	23
2200	32	30	28	27	26	24	24
2250	33	31	29	28	26	25	24

TABLE 1 (continued)

No. of Counts	1 hour 15 min	1 hour 20 min	1 hour 25 min	1 hour 30 min	1 hour 35 min	1 hour 40 min	1 hour 45 min
2300	34	32	30	28	27	25	24
2350	34	32	30	29	27	26	25
2400	35	33	31	29	28	26	26
2450	36	34	31	30	28	27	26
2500	36	34	32	30	29	28	27
2550	37	35	33	31	30	28	27
2600	38	36	33	32	30	29	28
2650	39	36	34	32	31	29	28
2700	39	37	35	33	31	30	29
2750	40	38	35	34	32	30	29
2800	41	38	36	34	32	31	30
2850	41	39	36	35	33	31	30
2900	42	39	37	35	33	32	31
2950	43	40	38	36	34	32	31
3000	44	41	38	36	34	33	32
3050	44	41	39	37	35	33	32
3100	45	42	40	38	35	34	32
3150	46	43	40	38	36	34	33
3200	46	43	41	39	36	35	33
3250	47	44	42	39	37	35	34
3300	48	45	42	40	38	36	34
3350	49	45	43	40	38	36	35
3400	49	46	43	41	39	37	35
3450	50	47	44	42	39	38	36
3500	51	47	44	42	40	38	36
3550	51	48	45	43	40	39	37
3600	52	49	46	43	41	39	37
3650	53	49	46	44	41	40	38
3700	53	50	47	44	42	40	38
3750	54	51	48	45	42	41	39
3800	55	51	48	46	43	41	39
3850	56	52	49	46	43	42	40
3900	56	52	49	47	44	42	40
3950	57	53	50	47	44	43	41
4000	58	54	51	48	45	43	41
4050	58	55	51	48	45	44	42
4100	59	55	52	49	46	44	42
4150	60	56	53	50	46	45	42
4200	60	56	53	50	47	45	43
4250	61	57	54	51	48	46	43
4300	62	58	54	51	48	46	44
4350	62	58	55	52	49	47	44
4400	63	59	55	53	50	47	45
4450	64	60	56	53	50	48	45
4500	64	60	57	54	51	49	46

TABLE I

FOR ALL CHISHOLM ANEMOMETERS (Correction factor is built into table)

FFR
5/57

CONVERSION TABLE - Number of counts to corrected average wind speed

For use with Chisholm type anemometer and time intervals of 2-5 hours

Number of Counts	Elapsed time in hours and minutes																																			
	2 Hours												3 Hours												4 Hours						5 Hours					
	00	05	10	15	20	25	30	35	40	45	50	55	00	05	10	15	20	25	30	35	40	45	50	55	00	10	20	30	40	50	00					
50	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
100	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0					
150	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
200	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					
250	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2					
300	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2					
350	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2					
400	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2					
450	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3					
500	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3					
550	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3					
600	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3					
650	6	6	6	6	6	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3					
700	7	7	6	6	6	6	6	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3					
750	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3					
800	8	7	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4					
850	8	8	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4					
900	9	8	8	8	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4					
950	9	9	8	8	8	8	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	4	4	4					
1000	9	9	9	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	4	4					
1050	10	9	9	9	8	8	8	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5	5	5	4					
1100	10	10	9	9	9	9	8	8	8	8	7	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5	5					
1150	11	10	10	9	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5					
1200	11	11	10	10	10	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5					
1250	12	11	11	10	10	10	9	9	9	9	8	8	8	8	7	7	7	7	7	7	7	7	6	6	6	6	6	6	5	5	5					
1300	12	12	11	11	10	10	10	9	9	9	9	8	8	8	8	8	7	7	7	7	7	7	7	7	6	6	6	6	6	5	5					
1350	13	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	7	7	6	6	6	6	6	5					
1400	13	13	12	11	11	11	10	10	10	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6					
1450	14	13	13	12	12	11	11	10	10	10	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6					
1500	14	14	13	13	12	11	11	11	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6					
1550	15	14	14	13	13	12	12	11	11	10	10	10	10	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	6	6					
1600	15	14	14	14	13	13	12	12	11	11	10	10	10	10	9	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	6					
1650	16	15	14	14	14	13	13	12	12	11	11	10	10	10	10	9	9	9	9	9	9	8	8	8	8	8	7	7	7	7	7					
1700	16	15	15	14	14	13	13	12	12	12	11	11	10	10	10	10	10	9	9	9	9	9	8	8	8	8	7	7	7	7	7					
1750	16	15	15	14	14	14	13	13	12	12	12	11	11	10	10	10	10	9	9	9	9	9	9	8	8	8	8	7	7	7	7					
1800	16	16	15	15	14	14	14	13	13	12	12	12	11	11	11	10	10	10	10	9	9	9	9	9	9	8	8	8	7	7	7					
1850	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	10	10	10	10	10	9	9	9	9	9	8	8	8	8	7	7					
1900	17	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	10	10	10	10	10	9	9	9	9	9	8	8	8	8	7					
1950	18	17	16	16	16	15	14	14	14	13	13	13	12	12	12	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	8					
2000	18	18	17	16	16	15	15	14	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	9	9	9	9	8	8	8	8					
2050	19	18	17	17	16	16	15	15	14	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	9	9	9	9	8	8	8					
2100	19	18	18	17	16	16	16	15	15	14	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	9	9	9	9	8	8					
2150	19	19	18	17	17	16	16	15	15	15	14	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	9	9	9	9	8					
2200	20	19	18	18	17	17	16	16	15	15	15	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	9	9	9	9	8					
2250	20	19	19	18	18	17	16	16	16	15	15	15	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	9	9	9	9					

INSTRUCTIONS:

1. Use the number of counts and elapsed time nearest to your actual values. No interpolation is necessary.
2. Read corrected wind speed in miles per hour where the appropriate time and count columns cross. (The correction for a Chisholm type anemometer has been made for you in this table).

SEE PART I, CHAPTER 1, PAGE 11 OF FDR HANDBOOK FOR ENTRY IN COL. 9 OF FW & DI RECORD

TABLE I

CHISHOLM - Corrected

FFR
5/57

CONVERSION TABLE - Number of counts to corrected average wind speed (Con't)

Number of Counts	Elapsed time in hours and minutes																													
	2 Hours												3 Hours												4 Hours						5 Hours
	00	05	10	15	20	25	30	35	40	45	50	55	00	05	10	15	20	25	30	35	40	45	50	55	00	10	20	30	40	50	00
2300	21	20	19	18	18	17	17	16	16	15	15	15	15	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	9	9	9
2350	21	20	20	19	18	18	17	17	16	16	15	15	15	14	14	14	13	13	12	12	12	12	12	11	11	10	10	10	9	9	9
2400	22	21	20	19	19	18	18	17	16	16	16	15	15	15	14	14	14	13	13	12	12	12	12	12	11	11	10	10	10	9	9
2450	22	21	20	20	19	18	18	17	17	16	16	16	15	15	14	14	14	13	13	13	12	12	12	12	12	11	10	10	10	10	9
2500	22	22	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12	12	12	12	11	11	10	10	10	10
2550	23	22	21	20	20	19	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	13	12	12	12	12	11	10	10	10	10
2600	23	23	22	21	20	19	19	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	13	12	12	12	11	11	10	10	10
2650	24	23	22	21	20	20	19	18	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	13	12	12	12	11	10	10	10
2700	24	24	23	22	21	20	20	19	18	18	17	17	16	16	16	15	15	15	14	14	14	14	13	13	13	12	12	11	11	10	10
2750	25	24	23	22	21	20	20	19	19	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	13	12	12	12	11	11	10
2800	25	25	24	23	22	21	20	20	19	18	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	13	12	12	11	11	11
2850	26	25	24	23	22	21	20	20	19	19	18	18	17	17	16	16	16	15	15	15	14	14	14	14	13	13	12	12	12	11	11
2900	26	25	25	24	23	22	21	20	20	19	18	18	18	17	17	16	16	16	15	15	15	14	14	14	14	13	13	12	12	11	11
2950	27	26	25	24	23	22	21	20	20	19	19	18	18	18	17	17	16	16	15	15	15	15	14	14	14	13	13	12	12	12	11
3000	27	26	25	25	24	23	22	21	20	20	19	19	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	13	13	12	11
3050	27	26	25	25	24	23	22	21	20	20	19	19	18	18	17	17	17	16	16	16	15	15	15	14	14	13	13	13	12	12	11
3100	28	27	26	25	24	24	23	22	21	20	19	19	19	18	18	18	17	17	16	16	16	15	15	14	14	14	13	13	13	12	11
3150	28	27	26	26	25	24	23	22	21	21	20	19	19	19	18	18	17	17	16	16	16	15	15	15	14	14	13	13	13	12	12
3200	29	28	27	26	25	25	24	23	22	21	21	20	19	19	18	18	18	17	17	17	16	16	15	15	15	14	14	13	13	13	12
3250	29	28	27	26	25	25	24	23	22	22	21	20	19	19	18	18	18	18	17	17	16	16	16	15	15	14	14	13	13	13	12
3300	29	28	27	26	26	25	24	23	22	22	21	20	20	19	19	18	18	18	17	17	16	16	16	15	15	14	14	14	13	13	12
3350	30	29	28	27	26	25	24	23	22	22	21	20	20	20	19	19	18	18	17	17	17	16	16	16	15	15	14	14	13	13	13
3400	30	29	28	27	26	25	25	24	23	23	22	21	20	20	19	19	18	18	18	17	17	17	16	16	16	15	15	14	14	13	13
3450	31	29	28	27	27	26	25	24	23	23	22	21	21	21	20	20	19	19	18	18	17	17	16	16	16	15	15	14	14	13	13
3500	31	30	29	28	27	26	25	24	23	23	22	22	21	21	20	20	19	19	18	18	17	17	17	16	16	16	15	15	14	14	13
3550	32	30	29	28	27	26	26	25	24	24	23	22	21	21	20	20	19	19	18	18	18	17	17	17	16	16	15	15	14	14	13
3600	32	31	30	29	28	27	26	25	24	24	23	22	22	21	20	20	20	19	19	18	18	18	17	17	16	16	15	15	14	14	13
3650	32	31	30	29	28	27	26	25	25	24	23	22	22	22	21	21	20	20	19	19	18	18	17	17	17	16	16	15	15	14	14
3700	33	32	30	29	28	27	27	26	25	25	24	23	22	22	21	21	20	20	19	19	18	18	18	17	17	17	16	16	15	14	14
3750	33	32	31	30	29	28	27	26	25	25	24	23	22	22	21	21	20	20	19	19	19	18	18	18	17	17	16	16	15	15	14
3800	34	32	31	30	29	28	27	26	26	25	25	24	23	22	21	21	20	20	20	19	19	19	18	18	17	17	16	16	15	15	14
3850	34	33	32	31	30	29	28	27	26	25	25	24	23	23	22	22	21	20	20	19	19	19	18	18	18	17	16	16	15	15	14
3900	34	33	32	31	30	29	28	27	26	25	25	24	23	23	22	22	21	20	20	20	19	19	18	18	18	17	16	16	15	15	14
3950	35	34	33	32	31	30	29	28	27	26	25	25	24	23	22	22	21	20	20	20	19	19	19	19	18	18	17	17	16	15	15
4000	35	34	33	32	31	30	29	28	27	26	26	25	24	23	22	22	22	21	20	20	20	20	19	19	18	18	17	17	16	16	15
4050	35	34	33	32	31	30	29	28	27	26	26	25	24	23	22	22	22	21	21	20	20	20	19	19	18	18	17	17	16	16	15
4100	36	35	34	33	32	31	30	29	28	27	26	25	25	24	23	23	22	21	21	21	20	20	19	19	19	18	17	17	16	16	15
4150	36	35	34	33	32	31	30	29	28	27	26	25	25	24	23	23	22	21	21	21	20	20	19	19	19	18	17	17	16	16	15
4200	37	35	34	33	32	31	30	29	28	27	27	26	25	25	24	23	22	22	21	21	21	20	20	20	19	19	18	17	16	16	15
4250	37	36	35	34	33	32	31	30	29	28	27	26	26	25	24	24	23	22	22	21	21	21	20	20	19	19	18	18	17	17	16
4300	38	36	35	34	33	32	31	30	29	28	27	26	26	25	24	24	23	22	22	22	21	21	20	20	19	19	18	18	17	17	16
4350	38	37	35	34	33	32	31	30	29	28	28	27	26	25	24	24	24	23	22	22	21	21	20	20	20	19	18	18	17	17	16
4400	39	37	36	35	34	33	31	30	30	29	28	27	26	25	25	25	24	23	22	22	21	21	21	21	20	19	18	18	17	17	16
4450	39	38	36	35	34	33	32	31	30	29	28	27	27	26	25	25	25	24	23	23	22	22	21	21	20	20	19	18	17	17	16
4500	40	39	37	36	34	33	32	31	30	29	28	27	27	26	26	25	25	24	23	23	22	22	21	21	20	20	19	19	18	18	17

NOTE: If the number of counts exceeds 4500, round it off to the nearest 50 and divide this figure into 2 numbers that appear in the count column. Obtain the corrected wind speed for each of these and add them together. For example, if the number of counts is 5859, round off to 5850 and use 3000 and 2850 (or any similar combination adding up to 5850).

TABLE 2

FOR FRIEZ AND ROGER ANEMOMETERS (Uncorrected - see instructions below)

FFR
5/57

CONVERSION TABLE - Number of counts to uncorrected average wind speed

For use with 1/60th mile counts and time intervals of 2-5 hours

Number of Counts	Elapsed time in hours and minutes																													
	2 Hours												3 Hours												4 Hours						5 Hours
	00	05	10	15	20	25	30	35	40	45	50	55	00	05	10	15	20	25	30	35	40	45	50	55	00	10	20	30	40	50	00
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
150	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0
200	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
250	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
300	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1
350	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1
400	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
450	4	4	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
500	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
550	5	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2
600	5	5	5	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2
650	5	5	5	5	5	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2
700	6	6	5	5	5	5	5	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2
750	6	6	6	6	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	2
800	7	6	6	6	6	6	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3
850	7	7	6	6	6	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3
900	8	7	7	7	6	6	6	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
950	8	8	7	7	7	7	6	6	6	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3
1000	8	8	8	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	4	3	3
1050	9	8	8	8	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	3
1100	9	9	8	8	8	8	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4	4
1150	10	9	9	8	8	8	8	7	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5	5	5	5	4	4	4	4	4
1200	10	10	9	9	9	8	8	8	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	5	5	4	4	4	4
1250	10	10	10	9	9	9	8	8	8	8	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5	4	4	4	4
1300	11	10	10	10	9	9	9	8	8	8	8	7	7	7	7	7	6	6	6	6	6	6	6	6	5	5	5	5	5	4	4
1350	11	11	10	10	10	9	9	9	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	6	5	5	5	5	5	4
1400	12	11	11	10	10	10	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	5	5	5	5	5
1450	12	12	11	11	10	10	10	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	6	5	5	5	5
1500	12	12	12	11	11	10	10	10	9	9	9	8	8	8	8	8	8	7	7	7	7	7	6	6	6	6	6	6	5	5	5
1550	13	12	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	5	5
1600	13	13	12	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	7	7	7	7	7	7	6	6	6	6	6	5
1650	14	13	13	12	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	8	7	7	7	7	7	6	6	6	6	6
1700	14	14	13	13	12	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	8	7	7	7	7	6	6	6	6	6
1750	15	14	13	13	12	12	12	11	11	11	10	10	10	9	9	9	9	8	8	8	8	8	8	7	7	7	7	6	6	6	6
1800	15	14	14	13	13	12	12	12	11	11	11	10	10	10	10	9	9	9	9	8	8	8	8	8	8	7	7	7	6	6	6
1850	15	15	14	14	13	13	12	12	12	11	11	11	10	10	10	9	9	9	9	9	8	8	8	8	8	7	7	7	7	6	6
1900	16	15	15	14	14	13	13	12	12	12	11	11	11	10	10	10	9	9	9	9	9	8	8	8	8	8	7	7	7	7	6
1950	16	16	15	14	14	13	13	13	12	12	12	11	11	10	10	10	10	9	9	9	9	9	8	8	8	8	7	7	7	7	7
2000	17	16	15	15	14	14	13	13	12	12	12	11	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	7	7	7	7
2050	17	16	16	15	15	14	14	13	13	12	12	12	11	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	7	7	7
2100	18	17	16	16	15	14	14	14	13	13	12	12	12	11	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	7	7
2150	18	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	7
2200	18	18	17	16	16	15	15	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	10	9	9	9	8	8	8	8	7
2250	19	18	17	17	16	16	15	15	14	14	13	13	13	12	12	11	11	11	11	10	10	10	10	10	9	9	9	8	8	8	8

INSTRUCTIONS:

1. Use the number of counts and elapsed time nearest to your actual values. No interpolation is necessary.
2. Read uncorrected wind speed in miles per hour where the appropriate time and count columns cross.
3. To obtain corrected wind speed add the correction factor for your type of anemometer as follows-

   Friez 3-cup: (large) 1-16 m.p.h. add 1 m.p.h.

   Friez 3-cup: (small) all velocities add 1 m.p.h.

   Roger 3-cup: all velocities add 1 m.p.h.

SEE PART I, CHAPTER 1, PAGE 11 OF FDR HANDBOOK FOR ENTRY IN COL. 9 OF FW & DI RECORD

TABLE 2

FRIEZ and ROGER - Uncorrected

CONVERSION TABLE - Number of counts to uncorrected average wind speed (Con't)

FFR
5/57

Number of Counts	Elapsed time in hours and minutes																																			
	2 Hours												3 Hours												4 Hours						5 Hours					
	00	05	10	15	20	25	30	35	40	45	50	55	00	05	10	15	20	25	30	35	40	45	50	55	00	10	20	30	40	50	00					
2300	19	18	18	17	16	16	15	15	14	14	14	13	13	12	12	12	12	11	11	11	10	10	10	10	10	9	9	9	8	8	8					
2350	20	19	18	17	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	11	11	10	10	10	10	9	9	9	8	8	8					
2400	20	19	18	18	17	17	16	16	15	14	14	14	13	13	13	12	12	12	11	11	11	11	10	10	10	10	9	9	9	8	8					
2450	20	20	19	18	17	17	16	16	15	15	14	14	14	13	13	12	12	12	12	11	11	11	11	10	10	10	9	9	9	9	8					
2500	21	20	19	18	18	17	17	16	16	15	15	14	14	14	13	13	13	12	12	12	11	11	11	11	10	10	10	9	9	9	9					
2550	21	20	20	19	18	18	17	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	11	10	10	9	9	9	9					
2600	22	21	20	19	19	18	17	17	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	9	9	9					
2650	22	21	20	20	19	18	18	17	16	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	10	10	9	9	9					
2700	22	22	21	20	19	19	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12	12	12	12	11	11	10	10	10	9	9					
2750	23	22	21	20	20	19	18	18	17	17	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	9					
2800	23	22	22	21	20	19	19	18	17	17	16	16	16	15	15	14	14	14	13	13	13	12	12	12	12	11	11	10	10	10	10					
2850	24	23	22	21	20	20	19	18	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12	12	12	11	11	11	10	10	10					
2900	24	23	22	22	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12	12	12	11	11	10	10	10					
2950	25	24	23	22	21	20	20	19	18	18	17	17	16	16	16	15	15	14	14	14	13	13	13	13	12	12	11	11	11	10	10					
3000	25	24	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	14	13	13	13	12	12	12	11	11	10	10					
3050	25	24	23	23	22	21	20	20	19	19	18	18	17	16	16	16	16	15	15	14	14	13	13	13	12	12	12	11	11	11	10					
3100	26	25	24	23	22	21	21	20	19	19	18	18	17	16	16	16	16	15	15	15	14	14	13	13	13	12	12	11	11	11	10					
3150	26	25	24	24	23	22	21	20	20	19	18	18	17	17	16	16	16	15	15	15	14	14	14	13	13	12	12	11	11	11	10					
3200	27	26	25	24	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	14	14	13	13	12	12	11	11	11					
3250	27	26	25	24	23	22	22	21	20	19	19	18	18	17	17	16	16	16	15	15	14	14	14	14	13	13	12	12	11	11	11					
3300	27	26	25	24	24	23	22	21	21	20	19	19	18	17	17	17	16	16	16	16	15	14	14	14	14	13	13	12	12	11	11					
3350	28	27	26	25	24	23	22	21	21	20	20	19	19	18	17	17	17	16	16	16	15	15	15	14	14	13	13	12	12	11	11					
3400	28	27	26	25	24	23	23	22	21	20	20	19	19	18	18	17	17	16	16	16	15	15	15	15	14	14	13	13	12	12	11					
3450	29	27	26	25	25	24	23	22	22	21	20	19	19	18	18	17	17	17	16	16	15	15	15	15	14	14	13	13	12	12	12					
3500	29	28	27	26	25	24	23	22	22	21	21	20	19	18	18	18	17	17	17	16	16	15	15	15	15	14	13	13	12	12	12					
3550	30	28	27	26	25	24	24	23	22	21	21	20	20	19	18	18	18	17	17	17	16	16	15	15	15	14	14	13	13	12	12					
3600	30	29	28	27	26	25	24	23	22	21	21	20	20	19	19	18	18	17	17	17	16	16	16	16	15	14	14	13	13	12	12					
3650	30	29	28	27	26	25	24	23	23	22	22	21	20	19	19	18	18	18	17	17	16	16	16	16	15	15	14	14	13	12	12					
3700	31	30	28	27	26	25	25	24	23	22	22	21	21	20	19	19	18	18	18	17	17	16	16	16	15	15	14	14	13	13	12					
3750	31	30	29	28	27	26	25	24	23	22	22	21	21	20	19	19	19	18	18	17	17	17	16	16	16	15	14	14	13	13	13					
3800	32	30	29	28	27	26	25	24	24	23	22	21	21	20	20	19	19	19	18	18	17	17	17	17	16	15	15	14	14	13	13					
3850	32	31	30	29	28	27	26	25	24	23	23	22	21	20	20	19	19	19	19	18	17	17	17	17	16	15	15	14	14	13	13					
3900	32	31	30	29	28	27	26	25	24	23	23	22	22	21	20	20	19	19	19	18	18	17	17	17	16	16	15	14	14	13	13					
3950	33	32	31	30	29	28	27	26	25	24	23	22	22	21	21	20	20	19	19	18	18	17	17	17	17	16	15	15	14	13	13					
4000	33	32	31	30	29	28	27	26	25	24	24	23	22	21	21	20	20	20	19	19	18	18	17	17	17	16	15	15	14	14	13					
4050	33	32	31	30	29	28	27	26	25	24	24	23	23	22	21	20	20	20	20	19	18	18	18	18	17	16	16	15	15	14	14					
4100	34	33	32	31	30	29	28	27	26	25	24	23	23	22	22	21	20	20	20	19	19	18	18	18	17	16	16	15	15	14	14					
4150	34	33	32	31	30	29	28	27	26	25	24	23	23	22	22	21	21	20	20	19	19	18	18	18	17	17	16	15	15	14	14					
4200	35	33	32	31	30	29	28	27	26	25	25	24	23	22	22	21	21	21	20	19	19	18	18	18	18	17	16	16	15	14	14					
4250	35	34	33	32	31	30	29	28	27	26	25	24	24	23	23	22	21	21	21	20	19	19	18	18	18	17	16	16	15	15	14					
4300	36	34	33	32	31	30	29	28	27	26	25	24	24	23	23	22	22	21	21	20	20	19	19	19	18	17	17	16	15	15	14					
4350	36	35	33	32	31	30	29	28	27	26	26	25	24	23	23	22	22	21	21	20	20	19	19	19	18	18	17	16	16	15	15					
4400	37	35	34	33	32	31	29	28	28	27	26	25	24	23	23	23	22	22	21	20	20	19	19	19	18	18	17	16	16	15	15					
4450	37	36	34	33	32	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	20	20	19	19	19	18	17	17	16	16	15					
4500	38	36	35	34	32	31	30	29	28	27	26	25	25	24	24	23	23	22	22	21	21	20	20	19	19	18	17	17	16	16	15					

NOTE: If the number of counts exceeds 4500, round it off to the nearest 50 and divide this figure into 2 numbers that appear in the count column. Obtain the uncorrected wind speed for each of these and add them together. Then correct for type of anemometer. For example, if the number of counts is 5859, round off to 5850 and use 3000 and 2850 (or any similar combination adding up to 5850).

COMPUTING TABLES FOR . . .

BURNING INDEX

IGNITION INDEX

FIRE LOAD INDEX

FINE FUEL MOISTURE

1

Fuel stick moisture content	Relative humidity																		
	00 06	07 09	10 12	13 15	16 20	21 27	28 34	35 41	42 48	49 53	54 58	59 63	64 68	69 72	73 76	77 82	83 87	88 92	93 99
01.0-04.5	1.5	1.5	2	2.5	3	4	5	5	6	7	8	8	9	10	11	12	15	16	18+
05.0-10.0	2	2.5	3	4	4	5	6	6	7	8	9	10	10	11	12	14	16	18	18+
11.0-15.0	3	4	4	5	5	6	7	7	8	9	10	11	11	12	13	15	17	18+	18+
16.0-20.0	4	5	5	6	6	7	8	8	9	10	11	12	12	13	14	16	18	18+	18+
21.0-25.0	5	6	6	7	7	8	9	9	10	11	12	13	13	14	15	17	18+	18+	18+
26.0-30.0	6	7	7	8	8	9	10	10	11	12	13	14	14	15	16	18	18+	18+	18+
31.0-35.0	7	8	8	9	9	10	11	11	12	13	14	15	15	16	17	18+	18+	18+	18+
36.0-40.0	8	9	9	10	10	11	12	12	13	14	15	16	16	17	18	18+	18+	18+	18+
41.0-45.0	9	10	10	11	11	12	13	13	14	15	16	17	18	18	18+	18+	18+	18+	18+
46.0-50.0	10	11	11	12	12	13	13	14	15	16	17	17	18	18+	18+	18+	18+	18+	18+

SPREAD INDEX

2

Fine fuel moisture	Wind speed (m. p. h.)																		
	00 02	03 05	06 07	08 09	10	11	12	13	14	15	16	17	18	19	20	21	22 23	24+	
1.5	14	19	23	28	33	37	40	43	47	51	55	61	66	70	74	83	89	100	
2	13	17	21	26	30	34	37	40	43	47	51	56	61	65	70	77	82	92	
2.5	12	15	20	24	28	32	35	38	41	44	47	52	56	61	67	72	77	86	
3	11	14	18	22	26	29	32	34	38	41	44	48	52	57	62	67	73	81	
4	10	13	16	20	23	26	29	31	34	37	39	43	47	51	56	60	64	72	
5	8	11	14	17	20	22	25	28	30	33	35	38	41	45	49	53	57	62	
6	7	9	12	14	17	19	21	24	26	28	30	33	35	39	44	47	49	54	
7	6	8	10	12	15	17	19	21	22	24	26	29	31	33	39	42	44	46	
8	5	7	9	11	13	14	16	17	19	20	22	25	26	29	33	36	38	41	
9	5	6	7	8	10	11	13	14	16	17	18	21	22	25	28	30	32	36	
10	4	5	6	7	8	9	10	12	13	15	16	17	19	20	24	25	27	29	
11	3	4	5	6	7	8	9	9	11	12	12	13	15	16	19	20	22	24	
12	2	3	3	4	5	6	6	7	8	9	9	10	11	13	14	15	16	18	
13	1	2	2	3	3	4	4	4	5	6	6	7	8	9	10	11	12	13	
14	0	0	0	0	0	1	1	2	3	3	4	4	5	6	7	7	8	8	
15	0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	4	4	5	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
18+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
II 41-60%	00 01	02 04	05 06	07	08	09	10	11	12	13	14	15	16	--	17	18	19	20+	
III 61%+	00	01 02	03 04	05 06	07	08	--	09	10	11	12	--	13	14	15	16	--	17+	
Slope class	Wind speed (m. p. h.)																		

GRASS BURNING INDEX

3-G

Percent cured code	Spread index																						
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
3	0	1	2	3	3	4	4	5	6	7	8	8	9	10	11	12	13	14	16	17	17	18	18	19
2	0	1	1	2	2	3	4	4	5	5	6	7	8	9	9	10	11	11	12	12	13	14	14	15
1	0	0	1	1	2	2	3	4	4	4	5	5	5	6	6	7	7	8	8	9	9	10	10	11
0	0	0	0	0	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	4

Percent cured code	Spread index																						
	24 25	26 27	28 29	30 31	32 33	34 35	36 37	38 39	40 42	43 45	46 48	49 51	52 54	55 57	58 60	61 63	64 66	67 69	70 72	73 75	76 78	79 81	82 90	91 100
4	25	27	29	31	33	35	37	39	41	44	47	50	53	56	59	62	65	68	71	74	77	80	86	100
3	21	23	24	26	27	29	31	32	35	38	40	42	45	47	50	53	55	58	61	63	65	68	73	82
2	16	18	19	20	21	22	24	25	27	29	31	32	34	37	39	40	42	44	46	48	50	52	56	62
1	11	12	13	14	15	16	17	18	19	20	21	23	24	25	26	28	29	31	32	33	35	36	39	43
0	4	4	4	4	5	5	5	6	6	7	7	8	8	9	9	10	10	11	11	11	12	12	13	14

Enter index on Fire Weather and Danger Index Record

FINE FUEL MOISTURE

1

Fuel stick moisture content	Relative humidity																		
	00 06	07 09	10 12	13 15	16 20	21 27	28 34	35 41	42 48	49 53	54 58	59 63	64 68	69 72	73 76	77 82	83 87	88 92	93 99
01.0-04.5	1.5	1.5	2	2.5	3	4	5	5	6	7	8	8	9	10	11	12	15	16	18+
05.0-10.0	2	2.5	3	4	4	5	6	6	7	8	9	10	10	11	12	14	16	18	18+
11.0-15.0	3	4	4	5	5	6	7	7	8	9	10	11	11	12	13	15	17	18+	18+
16.0-20.0	4	5	5	6	6	7	8	8	9	10	11	12	12	13	14	16	18	18+	18+
21.0-25.0	5	6	6	7	7	8	9	9	10	11	12	13	13	14	15	17	18+	18+	18+
26.0-30.0	6	7	7	8	8	9	10	10	11	12	13	14	14	15	16	18	18+	18+	18+
31.0-35.0	7	8	8	9	9	10	11	11	12	13	14	15	15	16	17	18+	18+	18+	18+
36.0-40.0	8	9	9	10	10	11	12	12	13	14	15	16	16	17	18	18+	18+	18+	18+
41.0-45.0	9	10	10	11	11	12	13	13	14	15	16	17	18	18	18+	18+	18+	18+	18+
46.0-50.0	10	11	11	12	12	13	13	14	15	16	17	17	18	18+	18+	18+	18+	18+	18+

INTENSITY INDEX - BRUSH FUELS

3-B

Fuel stick moisture content	Days since new growth											Fuel stick moisture content
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-100	101-120	121+	
	Code											
	01	02	03	04	05	06	07	08	09	10	11	
01.0	70	74	78	82	84	88	90	92	95	98	100	01.0
01.5	66	70	74	77	80	83	85	88	90	93	96	01.5
02.0	61	66	70	72	76	78	80	84	86	88	91	02.0
02.5	57	62	66	68	72	74	76	79	82	84	87	02.5
03.0	54	58	62	65	68	71	73	75	78	81	84	03.0
03.5	50	54	58	61	64	67	69	72	74	77	80	03.5
04.0	46	51	55	58	61	64	66	68	71	74	76	04.0
04.5	44	48	52	55	58	61	63	66	68	71	74	04.5
05.0	40	44	49	52	55	58	60	62	65	68	70	05.0
05.5	38	42	46	49	52	55	57	60	62	65	68	05.5
06.0	35	40	44	46	50	52	54	57	60	62	65	06.0
06.5-07.0	30	35	39	42	45	48	50	52	55	58	60	06.5-07.0
07.5-08.0	26	31	35	38	41	44	46	48	51	54	56	07.5-08.0
08.5-09.0	23	28	32	34	38	40	42	45	48	50	53	08.5-09.0
09.5-10.0	20	24	28	32	34	38	40	42	44	48	50	09.5-10.0
11.0-12.0	16	20	24	28	30	34	36	38	40	44	46	11.0-12.0
13.0-14.0	12	17	21	24	27	30	32	34	37	40	42	13.0-14.0
15.0-16.0	10	14	18	22	24	28	30	32	34	38	40	15.0-16.0
17.0-18.0	8	12	16	19	22	25	27	30	32	35	38	17.0-18.0
19.0+	5	9	13	16	19	22	24	27	29	32	34	19.0+

SPREAD INDEX

2

Fine fuel moisture	Wind speed (m. p. h.)																			
	00 02	03 05	06 07	08 09	10	11	12	13	14	15	16	17	18	19	20	21	22 23	24+		
1.5	14	19	23	28	33	37	40	43	47	51	55	61	66	70	74	83	89	100		
2	13	17	21	26	30	34	37	40	43	47	51	56	61	65	70	77	82	92		
2.5	12	15	20	24	28	32	35	38	41	44	47	52	56	61	67	72	77	86		
3	11	14	18	22	26	29	32	34	38	41	44	48	52	57	62	67	73	81		
4	10	13	16	20	23	26	29	31	34	37	39	43	47	51	56	60	64	72		
5	8	11	14	17	20	22	25	28	30	33	35	38	41	45	49	53	57	62		
6	7	9	12	14	17	19	21	24	26	28	30	33	35	39	44	47	49	54		
7	6	8	10	12	15	17	19	21	22	24	26	29	31	33	39	42	44	46		
8	5	7	9	11	13	14	16	17	19	20	22	25	26	29	33	36	38	41		
9	5	6	7	8	10	11	13	14	16	17	18	21	22	25	28	30	32	36		
10	4	5	6	7	8	9	10	12	13	15	16	17	19	20	24	25	27	29		
11	3	4	5	6	7	8	9	9	11	12	12	13	15	16	19	20	22	24		
12	2	3	3	4	5	6	6	7	8	9	9	10	11	13	14	15	16	18		
13	1	2	2	3	3	4	4	4	5	6	6	7	8	9	10	11	12	13		
14	0	0	0	0	0	1	1	2	3	3	4	4	5	6	7	7	8	8		
15	0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	4	4	5		
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2		
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		
18+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
II 41-60%	00 01	02 04	05 06	07	08	09	10	11	12	13	14	15	16	--	17	18	19	20+		
III 61%+	00	01 02	03 04	05 06	07	08	--	09	10	11	12	--	13	14	15	16	--	17+		
Slope class	Wind speed (m. p. h.)																			

BRUSH BURNING INDEX

4

Intensity index	Spread index																							
	0 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 19	20 22	23 25	26 28	29 31	32 34	35 39	40 44	45 49	50 54	55 60	61 67	68 74	75 81	82 90	91 100
0-12	0	0	1	1	1	1	2	2	2	2	3	3	4	4	5	5	6	6	7	8	9	9	10	11
13-19	0	1	1	2	2	2	3	3	4	4	5	5	6	7	7	8	9	10	12	13	14	15	17	19
20-26	0	1	1	2	3	3	4	4	5	6	6	7	8	9	10	11	13	14	16	17	19	21	23	26
27-32	1	1	2	3	3	4	5	5	6	7	8	9	10	12	13	14	16	18	20	22	24	27	30	33
33-36	1	1	2	3	4	5	6	6	7	8	10	11	12	14	15	17	19	21	24	26	29	32	35	39
37-39	1	2	2	3	4	5	6	7	8	9	11	12	14	15	17	19	21	23	26	29	32	35	39	43
40-42	1	2	3	4	5	6	7	8	9	10	12	13	15	16	18	21	23	25	28	31	35	38	42	47
43-46	1	2	3	4	5	6	7	8	10	11	13	14	16	18	20	22	25	28	31	34	37	41	45	50
47-49	1	2	3	4	5	6	8	9	10	12	14	15	17	19	21	24	27	30	33	36	40	44	49	54
50-52	1	2	3	5	6	7	8	9	11	13	15	16	18	20	23	26	29	32	35	39	43	48	52	58
53-56	1	2	4	5	6	7	9	10	12	14	16	18	20	22	24	27	31	34	38	42	46	51	56	62
57-59	1	2	4	5	7	8	9	11	12	14	17	19	21	23	26	29	32	36	40	44	49	54	59	66
60-62	1	3	4	5	7	8	10	11	13	15	18	20	22	24	27	31	34	38	42	47	52	57	63	69
63-66	1	3	4	6	7	9	10	12	14	16	18	21	23	25	28	32	36	40	44	49	55	60	66	73
67-69	1	3	4	6	8	9	11	13	15	17	19	22	24	27	30	34	38	42	47	52	58	63	70	77
70-72	1	3	5	6	8	10	11	13	15	18	20	23	26	28	32	36	40	44	49	54	60	66	73	81
73-76	1	3	5	7	8	10	12	14	16	18	21	24	27	29	33	37	41	46	51	56	62	69	76	84
77-79	1	3	5	7	9	11	12	14	17	19	22	25	28	31	34	38	43	48	53	59	65	72	79	87
80-82	1	3	5	7	9	11	13	15	17	20	23	26	29	32	36	40	45	50	55	61	68	75	83	91
83-86	2	3	5	7	9	11	13	15	18	21	24	27	30	33	37	42	47	52	58	64	71	78	86	95
87-89	2	4	6	8	10	12	14	16	19	22	25	28	31	34	38	43	49	54	60	67	74	81	89	99
90-92	2	4	6	8	10	12	15	17	20	23	26	29	32	36	40	45	51	56	62	69	76	84	93	100
93-96	2	4	6	8	11	13	15	17	20	24	27	30	33	37	42	47	53	58	64	72	79	87	96	100
97-100	2	4	6	9	11	13	16	18	21	24	28	31	35	38	43	49	55	60	67	74	82	90	100	100

Enter index on Fire Weather and Danger Index Record

FINE FUEL MOISTURE

1

Fuel stick moisture content	Relative humidity																		
	00 06	07 09	10 12	13 15	16 20	21 27	28 34	35 41	42 48	49 53	54 58	59 63	64 68	69 72	73 76	77 82	83 87	88 92	93 99
01.0-04.5	1.5	1.5	2	2.5	3	4	5	5	6	7	8	8	9	10	11	12	15	16	18+
05.0-10.0	2	2.5	3	4	4	5	6	6	7	8	9	10	10	11	12	14	16	18	18+
11.0-15.0	3	4	4	5	5	6	7	7	8	9	10	11	11	12	13	15	17	18+	18+
16.0-20.0	4	5	5	6	6	7	8	8	9	10	11	12	12	13	14	16	18	18+	18+
21.0-25.0	5	6	6	7	7	8	9	9	10	11	12	13	13	14	15	17	18+	18+	18+
26.0-30.0	6	7	7	8	8	9	10	10	11	12	13	14	14	15	16	18	18+	18+	18+
31.0-35.0	7	8	8	9	9	10	11	11	12	13	14	15	15	16	17	18+	18+	18+	18+
36.0-40.0	8	9	9	10	10	11	12	12	13	14	15	16	16	17	18	18+	18+	18+	18+
41.0-45.0	9	10	10	11	11	12	13	13	14	15	16	17	18	18	18+	18+	18+	18+	18+
46.0-50.0	10	11	11	12	12	13	13	14	15	16	17	17	18	18+	18+	18+	18+	18+	18+

INTENSITY INDEX - TIMBER FUELS

3-T

Fuel stick moisture content	Buildup										Fuel stick moisture content
	000.0 001.9	002.0 003.9	004.0 006.9	007.0 010.9	011.0 016.9	017.0 025.9	026.0 039.9	040.0 061.9	062.0 099.9	100.0 200.0	
	Code										
	1	2	3	4	5	6	7	8	9	0	
01.0	57	62	67	71	76	81	86	90	95	100	01.0
01.5	54	60	64	68	73	78	83	87	92	97	01.5
02.0	51	56	61	65	70	75	80	86	89	94	02.0
02.5	49	53	58	63	67	72	77	82	87	91	02.5
03.0	46	51	56	60	65	70	75	79	84	89	03.0
03.5-04.0	44	49	53	58	62	67	72	77	82	86	03.5-04.0
04.5-05.0	40	44	49	54	58	63	68	73	78	82	04.5-05.0
05.5-06.0	36	40	45	50	54	59	64	69	74	78	05.5-06.0
06.5-07.0	32	37	42	46	51	56	61	65	70	75	06.5-07.0
07.5-08.0	30	34	39	44	48	53	58	63	68	72	07.5-08.0
08.5-09.5	26	31	35	40	45	49	54	59	64	69	08.5-09.5
10.0-12.0	23	27	32	37	41	46	51	56	61	65	10.0-12.0
13.0-16.0	19	24	28	33	38	42	47	52	57	62	13.0-16.0
17.0-20.0	16	20	25	30	34	39	44	49	54	58	17.0-20.0
21.0+	13	17	22	27	31	36	41	46	51	55	21.0+

SPREAD INDEX

2

Fine fuel moisture	Wind speed (m. p. h.)																		
	00 02	03 05	06 07	08 09	10	11	12	13	14	15	16	17	18	19	20	21	22 23	24+	
1.5	14	19	23	28	33	37	40	43	47	51	55	61	66	70	74	83	89	100	
2	13	17	21	26	30	34	37	40	43	47	51	56	61	65	70	77	82	92	
2.5	12	15	20	24	28	32	35	38	41	44	47	52	56	61	67	72	77	86	
3	11	14	18	22	26	29	32	34	38	41	44	48	52	57	62	67	73	81	
4	10	13	16	20	23	26	29	31	34	37	39	43	47	51	56	60	64	72	
5	8	11	14	17	20	22	25	28	30	33	35	38	41	45	49	53	57	62	
6	7	9	12	14	17	19	21	24	26	28	30	33	35	39	44	47	49	54	
7	6	8	10	12	15	17	19	21	22	24	26	29	31	33	39	42	44	46	
8	5	7	9	11	13	14	16	17	19	20	22	25	26	29	33	36	38	41	
9	5	6	7	8	10	11	13	14	16	17	18	21	22	25	28	30	32	36	
10	4	5	6	7	8	9	10	12	13	15	16	17	19	20	24	25	27	29	
11	3	4	5	6	7	8	9	9	11	12	12	13	15	16	19	20	22	24	
12	2	3	3	4	5	6	6	7	8	9	9	10	11	13	14	15	16	18	
13	1	2	2	3	3	4	4	4	5	6	6	7	8	9	10	11	12	13	
14	0	0	0	0	0	1	1	2	3	3	4	4	5	6	7	7	8	8	
15	0	0	0	0	0	0	0	0	0	0	1	1	1	2	3	4	4	5	
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
18+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
II 41-60%	00 01	02 04	05 06	07	08	09	10	11	12	13	14	15	16	--	17	18	19	20+	
III 61%+	00	01 02	03 04	05 06	07	08	--	09	10	11	12	--	13	14	15	16	--	17+	
Slope class	Wind speed (m. p. h.)																		

TIMBER BURNING INDEX

4

Intensity index	Spread index																							
	0 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 19	20 22	23 25	26 28	29 31	32 34	35 39	40 44	45 49	50 54	55 60	61 67	68 74	75 81	82 90	91 100
0-12	0	0	1	1	1	1	2	2	2	2	3	3	4	4	5	5	6	6	7	8	9	9	10	11
13-19	0	1	1	2	2	2	3	3	4	4	5	5	6	7	7	8	9	10	12	13	14	15	17	19
20-26	0	1	1	2	3	3	4	4	5	6	6	7	8	9	10	11	13	14	16	17	19	21	23	26
27-32	1	1	2	3	3	4	5	5	6	7	8	9	10	12	13	14	16	18	20	22	24	27	30	33
33-36	1	1	2	3	4	5	6	6	7	8	10	11	12	14	15	17	19	21	24	26	29	32	35	39
37-39	1	2	2	3	4	5	6	7	8	9	11	12	14	15	17	19	21	23	26	29	32	35	39	43
40-42	1	2	3	4	5	6	7	8	9	10	12	13	15	16	18	21	23	25	28	31	35	38	42	47
43-46	1	2	3	4	5	6	7	8	10	11	13	14	16	18	20	22	25	28	31	34	37	41	45	50
47-49	1	2	3	4	5	6	8	9	10	12	14	15	17	19	21	24	27	30	33	36	40	44	49	54
50-52	1	2	3	5	6	7	8	9	11	13	15	16	18	20	23	26	29	32	35	39	43	48	52	58
53-56	1	2	4	5	6	7	9	10	12	14	16	18	20	22	24	27	31	34	38	42	46	51	56	62
57-59	1	2	4	5	7	8	9	11	12	14	17	19	21	23	26	29	32	36	40	44	49	54	59	66
60-62	1	3	4	5	7	8	10	11	13	15	18	20	22	24	27	31	34	38	42	47	52	57	63	69
63-66	1	3	4	6	7	9	10	12	14	16	18	21	23	25	28	32	36	40	44	49	55	60	66	73
67-69	1	3	4	6	8	9	11	13	15	17	19	22	24	27	30	34	38	42	47	52	58	63	70	77
70-72	1	3	5	6	8	10	11	13	15	18	20	23	26	28	32	36	40	44	49	54	60	66	73	81
73-76	1	3	5	7	8	10	12	14	16	18	21	24	27	29	33	37	41	46	51	56	62	69	76	84
77-79	1	3	5	7	9	11	12	14	17	19	22	25	28	31	34	38	43	48	53	59	65	72	79	87
80-82	1	3	5	7	9	11	13	15	17	20	23	26	29	32	36	40	45	50	55	61	68	75	83	91
83-86	2	3	5	7	9	11	13	15	18	21	24	27	30	33	37	42	47	52	58	64	71	78	86	95
87-89	2	4	6	8	10	12	14	16	19	22	25	28	31	34	38	43	49	54	60	67	74	81	89	99
90-92	2	4	6	8	10	12	15	17	20	23	26	29	32	36	40	45	51	56	62	69	76	84	93	100
93-96	2	4	6	8	11	13	15	17	20	24	27	30	33	37	42	47	53	58	64	72	79	87	96	100
97-100	2	4	6	9	11	13	16	18	21	24	28	31	35	38	43	49	55	60	67	74	82	90	100	100

Enter index on Fire Weather and Danger Index Record

FIRE IGNITION INDEX

Dry bulb temperature ° F	Fine fuel moisture													
	01.5	02.0	02.5	03.0	04.0	05.0	06.0	07.0	08.0	09.0	10.0	11.0	12.0	Over 12.0
Up to 39	81	78	73	68	59	50	40	31	21	12	3	1	0	0
40-44	83	79	74	69	60	51	41	32	22	13	4	1	1	0
45-49	85	80	75	70	61	52	43	33	24	14	5	1	1	0
50-54	86	81	76	71	62	53	44	35	25	15	6	1	1	0
55-59	87	82	77	73	64	55	45	36	26	17	8	1	1	0
60-64	89	83	78	75	65	56	47	37	28	19	10	2	1	0
65-69	90	85	80	76	66	57	48	38	29	20	11	2	1	0
70-74	92	86	81	77	67	59	49	39	30	21	12	2	1	0
75-79	94	88	83	79	69	60	50	40	31	22	13	3	1	0
80-84	95	89	85	81	71	62	52	41	33	24	15	5	1	0
85-89	95	90	86	82	72	63	53	43	34	25	16	6	2	0
90-94	96	92	87	83	73	65	55	44	35	26	17	7	2	0
95-99	97	93	89	85	75	66	56	46	37	27	19	9	2	0
100-104	98	95	90	86	76	67	57	47	38	29	20	10	2	0
105+	100	96	91	87	77	68	58	49	40	30	21	11	3	0

Enter index on Fire Weather and Danger Index Record

FIRE LOAD INDEX

Ignition index	Burning index																			
	0 4	5 9	10 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 74	75 79	80 84	85 89	90 94	95 100
0-4	0	0	0	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
5-9	0	1	1	2	3	3	3	4	5	6	6	6	6	7	8	9	10	10	11	11
10-14	1	2	2	3	4	5	6	7	8	9	10	10	11	13	14	15	16	17	18	19
15-19	1	2	3	5	6	7	8	10	11	13	14	16	18	18	20	21	23	24	26	27
20-24	1	3	5	6	8	9	11	13	14	16	18	21	23	24	26	27	29	30	32	34
25-29	2	3	5	8	10	11	14	16	18	21	23	24	27	29	31	34	36	37	40	42
30-34	2	3	6	9	11	13	16	19	21	24	27	29	32	34	37	40	42	45	48	50
35-39	2	5	6	10	13	16	19	23	26	27	31	34	37	40	43	46	48	52	55	58
40-44	2	5	8	11	14	18	21	25	29	31	35	39	42	45	48	52	55	60	63	66
45-49	2	5	10	13	16	20	24	28	32	35	39	43	47	50	54	58	62	66	70	73
50-54	2	6	10	14	18	23	27	31	35	39	44	48	52	56	60	64	69	73	77	81
55-59	2	6	11	15	20	25	29	34	39	43	48	52	56	61	66	71	76	80	84	89
60-64	2	7	12	17	22	27	32	37	42	47	52	56	61	67	72	77	82	87	92	97
65-69	2	8	13	18	24	29	34	40	45	50	56	61	66	72	77	83	89	94	100	100
70-74	2	8	14	20	26	31	37	43	48	54	60	66	72	77	82	89	95	100	100	100
75-79	3	8	14	21	27	34	40	46	52	58	65	71	77	84	89	95	100	100	100	100
80-84	3	10	16	23	29	35	42	49	56	62	69	76	82	89	95	100	100	100	100	100
85-89	3	10	16	24	31	37	45	52	60	66	73	80	86	93	100	100	100	100	100	100
90-94	3	10	18	26	33	40	47	55	63	70	77	84	92	100	100	100	100	100	100	100
95-100	3	11	19	28	35	43	52	60	68	76	84	92	100	100	100	100	100	100	100	100

Enter index on Fire Weather and Danger Index Record

Chapter 7

LIST OF FDR AREAS AND MAPS

	Page
FOREWORD	1
FDR AREA IDENTIFIERS	1
Number	1
Names	1
STATION DATA	1
Name	1
Number	1
Elevation	2
Use	2
Agency	3
FUEL TYPES	4
FIRE DANGER RATING AREA AND WEATHER STATION LIST	5
PRE-SEASON TIMBER BUILDUP STATIONS	23
List	24
SUMMARY OF INSTRUCTIONS FOR YEARLONG STATIONS	25
General	25
Forms	25
List of Yearlong Stations - Explanation	27
YEARLONG WEATHER STATIONS - LIST	29
FIRE DANGER RATING AREA MAP INDEX	30
FIRE DANGER RATING AREA MAPS - NOS. 1 - 10	31

FOREWORD

This chapter describes operational procedures of the Wildland Fire Danger Rating System. A summary of the structure of the system immediately precedes Part 1 of the handbook. Observation techniques, Danger Index computation, and Danger Index compilation are covered in earlier chapters of this Part. Material presented in this chapter refers directly to the accompanying List of FDR Areas and Maps.

FDR AREA IDENTIFIERS

The following items refer to the two headings found under "FDR AREA IDENTIFIERS".

Number

The Fire Danger Rating area numbers consist of three digits, beginning with 100. The numbering sequence begins in the northwest corner of the state and progresses southward and eastward, ending with 600's in the extreme southern portion of the state.

Names

FDR area names were assigned to provide easy identification of areas for the public and industry.

STATION DATA

The following items refer to the various headings listed under "STATION DATA".

Station Name

Division of Forestry and Contract county stations are listed according to the Division Blue Book name. For all other agencies the name shown is taken from the master list of Fire Weather stations kept by the Weather Bureau.

Number

The Station number shown in the list is the number which must be entered in the box titled "Sta. No." in the upper left hand corner of the form PSW, 4400-173 (R-5, 5100-173).

This number is taken from the master list of Fire Weather Stations kept by the Weather Bureau. The numbers in the master list are grouped according to administrative and political units, such as National Forests, National Parks, and counties.

A blank in the "Number" column indicates the station does not observe weather for that particular area. Check the "Use" column for the particular function of such stations.

Elevation

The listed elevations were taken from the master list of Fire Weather Stations kept by the Weather Bureau. The listed elevation should be coded and entered in the box titled "Elev." in the upper left hand corner of the form PSW, 4400-173 (R-5, 5100-173). Refer to Coding Tables in Part I, Chapter 6 for the proper code.

Use

The particular functions performed by listed stations are indicated by number codes in the "Use" column, as follows:

1. Compute Danger Indexes: Such stations will be responsible for making weather observations, computing appropriate Danger Indexes, and forwarding the information to the area averaging station.

2. Compute pre-season Timber Buildup: Stations designated as pre-season stations will begin this computation not later than May 1st and will use the Timber Buildup from a nearby yearlong station as the starting value. Headquarters will relay the first day's Buildup entry from pre-season stations to all stations opening later. See page 23 of this chapter for complete instructions.

3. Determine condition of vegetation and compute Area Average Danger Indexes: Station will be responsible for seeing that determination is made of Percent Cured of grass fuels and of the date of start of New Brush Growth (see Part I, Chapter 1, page 18). Station will either collect and average Danger Indexes for area or will have Area Average Index available, depending on local arrangements. In most cases these stations will also perform the prediction of the Danger Indexes for the next day. These stations will prepare the forms PSW, 4400-183 (R-5, 5100-183) and PSW, 4400-193 (R-5, 5100-193). Names of stations assigned the Use Code 3 are capitalized.

4. Weather Bureau punch card station: Station record is used by the Weather Bureau in a regional system of Fire Weather Stations for machine analysis of weather records. Because of the somewhat different type of record required these stations will always submit the Weather Bureau form 612-17 (formerly 1009E) in addition to the form PSW, 4400-173 (R5, 5100-173).

5. Observe Weather and Compute Danger Indexes yearlong: See page 25 of this chapter for detailed instructions.

Agency

The code listed in the column headed "Agency" is an abbreviation indicating the agency responsible for the operation of the station.

The following are the codes used for the cooperating agencies:

U.S. Forest Service - National Forests

A	:	Angeles	P	:	Plumas
Clev	:	Cleveland	SB	:	San Bernardino
E	:	Eldorado	Seq	:	Sequoia
Inyo	:	Inyo	Si	:	Sierra
K	:	Klamath	ST	:	Shasta-Trinity
L	:	Lassen	SR	:	Six Rivers
LP	:	Los Padres	Sta	:	Stanislaus
Mn	:	Mendocino	T	:	Tahoe
Mo	:	Modoc	Toi	:	Toiyabe

Bureau of Indian Affairs

HIR : Hoopa Indian Reservation

National Park Service

LNP : Lassen Volcanic National Park
SNP : Sequoia-Kings Canyon National Park
YNP : Yosemite National Park

State Forestry Agencies

CDF : California Division of Forestry
NEV : Nevada Division of Forestry

Contract Counties

KCo	:	Kern County	SBCo	:	Santa Barbara County
LACo	:	Los Angeles County	VCo	:	Ventura County
MCo	:	Marin County			

Other Cooperators

USA : U. S. Army
WB : U. S. Weather Bureau
SimCo : Simpson Timber Company

FUEL TYPES

"BI" indicates Burning Index and "FLI" the Fire Load Index. The symbols in these columns indicate the fuel types to be used in computing these indexes. An FDR area may compute Burning Indexes for one, two or three fuel types but only one fuel type will be used for computing the Fire Load Index.

Following are the fuel type symbols:

G : GRASS
B : BRUSH
T : TIMBER

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
100	DEL NORTE- NORTHERN HUMBOLDT COASTAL	Schoolhouse Pk. Gasquet Redwood Creek High Rock FORTUNA	0141 7503 0154 0196	3092 390 650 575	1,4 1,4 1 2,5 3	CDF SR SimCo CDF CDF	B, T	B
105	SOUTH HUMBOLDT COASTAL	High Rock Grasshopper LO FORTUNA	0196 0194	575 3381	1,5 1 3	CDF CDF CDF	B	B
110	GASQUET	Camp Six GASQUET	7501 7503	3778 390	1 1,3,4	SR SR	B	B
112	ORLEANS	Shelton Butte ORLEANS	7555 7552	3567 393	1 1,2,3,4	SR SR	T	T
115	WILLOW CREEK- HOOPA	Big Hill Hoopa Brush Mtn. SALYER	0143 0142 7524 7522	3577 359 3930 600	1 1,2 1 1,2,3,5	HIR HIR SR SR	T	T
120	KNEELAND- ALDERPOINT	Pratt Mtn. Bridgeville FORTUNA	0173 0172	3892 640	1,4 1 3	CDF CDF CDF	B	B
130	MAD RIVER	Ruth Kettenpom MAD RIVER	7533 7532 7531	2800 4212 2700	1 1 1,2,3,4	SR SR SR	T	T
140	MENDOCINO-SONOMA COAST	Parlin Fork Mt. Jackson LO HOWARD FOREST	2913 3051	226 1655	1,2,5 1 3,4	CDF CDF CDF	B, T	B

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
150	NORTH CENTRAL MENDOCINO COUNTY	Laytonville	2943	1676	1	CDF	B	B
		Cahto	2942	4233	1,4	CDF		
		HOWARD FOREST			3,4	CDF		
154	SOUTH EASTERN MENDOCINO COUNTY	HOWARD FOREST	2931	1900	1,3,4	CDF	B	B
160	COVELO	Covelo	2951	1380	1	CDF	B	B
		Eel River	2832	1500	1,4	Mn		
		HOWARD FOREST			3,4	CDF		
162	LAKE PILLSBURY-ETSEL RIDGE	Soda Creek	2821	1773	1	Mn	G,	B
		EEL RIVER	2832	1500	1,3,4	Mn	B	
165	SHELL MTN.-ALDER SPRINGS	Alder Springs	2816	4500	1	Mn	T	T
		Stonyford			2	Mn		
		EEL RIVER			3,4	Mn		
170	STONY CREEK-GRINDSTONE	Hunter Point	2827	2600	1	Mn	B	B
		Eagle Peak LO	2819	3700	1,4	Mn		
		Stonyford	2815	1200	1,5	Mn		
		WILLOWS			3	Mn		
175	CLEAR LAKE-BERRYESSA	Kelsey-Cobb	2731	2331	1	CDF	B	B
		MIDDLETOWN	2721	1105	1,3,4,5	CDF		
177	WESTERN COLUSA-YOLO	Berryessa LO	2633	3046	1	CDF	B	B
		Brooks	2632	360	1	CDF		
		Leesville	1501	1350	1	CDF		
		ST. HELENA			3	CDF		
180	SONOMA-WESTERN NAPA-WESTERN MARIN	Healdsburg	3043	250	1,5	CDF	B	B
		Mt. Jackson LO	3051	1655	1	CDF		
		SANTA ROSA			3	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
190	EASTERN MARIN	WOODACRE	3101	376	1,3,4	MCo	G, B	B
200	HAPPY CAMP-UKONOM	Slater Butte	0334	4670	1	K	T	T
		Ti Bar	0351	700	1	K		
		Offield Mtn.	0352	4116	1	K		
		HAPPY CAMP	0332	1088	1,2,3,4	K		
202	SALMON RIVER	Blue Ridge LO	0346	5800	1	K	T	T
		Crawford Creek	0344	2700	1	K		
		Forks of Salmon	0342	1242	1	K		
		SAWYERS BAR	0341	2172	1,2,3	K		
204	OAK KNOLL-SEIAD	Slater Butte	0334	4670	1	K	T	T
		Seiad	0361	1380	1	K		
		Hungry Creek	0309	4925	1	K		
		OAK KNOLL	0312	1963	1,2,3	K		
208	SCOTT VALLEY	Scott Bar LO	0363	4900	1	K	T	T
		Duzel Rock LO	0431	6037	1	CDF		
		Etna	0371	2800	1	K		
		Gazelle Mtn.	0372	5100	1	K		
		Callahan	0373	3136	1	K		
		FORT JONES	0324	2720	1,2,3,4,5	K		
210	SHASTA VALLEY	Weed	0545	3600	1	CDF	G, T	T
		YREKA	0421	2625	1,2,3,4	CDF		
214	BUTTE VALLEY	MT. HEBRON	0543	4250	1,3,4	K	G, B	B
216	DOUBLE HEAD	Blue Mtn.	1032	5850	1	Mo	G	G
		Timber Mtn.	1021	5500	1	Mo		
		CANBY			3,5	Mo		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
220	GOOSENEST-TENNANT	Jewel Springs	0381	5500	1	K	T	T
		Tennant	0382	4800	1	K		
		MT. HEBRON			2,3	K		
230	TRINITY	Hyampom	0231	1200	1	ST	B,	T
		Limedyke	0235	4694	1	ST	T	
		Hayfork	0233	2340	1,2,4	ST		
		Big Bar	0263	1272	1,2	ST		
		Weaverville	0213	2047	1,4,5	ST		
		Coffee Creek	0527	2485	1,2	ST		
		REDDING			3	ST		
238	YOLLA-BOLLA	Saddle Camp	0242	4300	1	ST	B,	T
		Harrison Gulch	0241	2710	1,2,4	ST	T	
		REDDING			3	ST		
240	MT. SHASTA	Mt. Shasta	0532	3543	1,4,5	ST	B,	T
		McCloud	0553	3200	1,2	ST	T	
		Black Fox Mtn.	0555	6510	1	ST		
		REDDING			3	ST		
241	SHASTA LAKE	Lakeshore	0519	1150	1	ST	B	B
		Hirz Mtn.	0516	3600	1	ST		
		Squaw Creek	0515	1300	1	ST		
		REDDING			3	ST		
242	REDDING	Ogo	0615	1310	1	CDF	B	B
		Red Bluff	0711	341	1	WB		
		REDDING			3	CDF		
244	BIG BEND-WHITMORE	Big Bend	0513	1700	1,2	ST	T	T
		Whitmore	0642	2236	1	CDF		
		Lassen Lodge	0731	4205	1	CDF		
		REDDING			3	CDF		
246	RED BLUFF-ELK CREEK	Red Bluff	0711	341	1	WB	G,	G
		Paskenta	0712	775	1	CDF	B	
		RED BLUFF			3	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
247	INSKIP	Inskip Hill	0911	3015	1,4	CDF	B	B
		RED BLUFF			3	CDF		
248	SUMMIT	Manzanita Lake	0864	5871	1	LNP	T	T
		Panther Springs	0947	3220	1	L		
		Colby Mtn.	0946	6004	1	L		
		CHESTER			2,3	L		
249	BURNEY-SOLDIER MTN.	Wiley Ranch	0566	3800	1	L	T	T
		Burney	0661	3185	1,2	CDF		
		FALL RIVER MILLS	0564	3307	1,3	L		
250	HAT CREEK	Black Ridge LO	0928	6037	1	L	T	T
		Hat Creek Rim	0925	5100	1	L		
		HAT CREEK	0922	3348	1,2,3,5	L		
255	BIG VALLEY	Bieber	1116	4125	1	CDF	B,	T
		Boyd Hill	1012	5500	1	Mo	T	
		Round Mtn.	1029	5268	1	Mo		
		ADIN	1011	4200	1,2,3	Mo		
258	WARNER	Sugar Hill	1052	7312	1	Mo	T	T
		Blue Mtn.	1032	5850	1	Mo		
		CANBY	1024	4312	1,2,3,4,5	Mo		
260							T	T
262	EAGLE LAKE	Dow Butte	0934	6743	1	L	B,	B,
		Bogard	0932	5600	1,2	L	T	T
		Eagle Lake	1111	5120	1	CDF		
		SUSANVILLE	1115	4555	1,2,3,4,5	CDF		
265	TERMO	Dow Butte	0934	6743	1	L	G,	B
		Termo	1121	5295	1	CDF	B	
		SUSANVILLE			3,5	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
268	HONEY LAKE	Laufman	1232	4858	1	P	G,	B
		Meadow View	1233	6057	1	P	B	
		Seven Lakes LO	1237	5200	1	P		
		QUINCY			3,5	P		
270	WEST BUTTE	Bangor	1322	750	1	CDF	G	G
		OROVILLE	1321	265	1,3,4,5	CDF		
280	STIRLING CITY	Stirling City	1323	3525	1,2	CDF	B,	B
		Sawmill Peak	1324	3330	1	CDF	T	
		OROVILLE			3,5	CDF		
282	BRUSH CREEK-CHALLENGE	Brush Creek	1211	3500	1	P	T	T
		Sunset Hill	1213	3321	1	P		
		Challenge	1214	2700	1,2	P		
		QUINCY			3,5	P		
285	CENTRAL PLUMAS	Gansner Bar	1222	2275	1	P	T	T
		Camel Peak	1215	5760	1	P		
		Greenville	1223	3580	1	P		
		QUINCY	1225	3408	1,2,3,4,5	P		
290	ALMANOR	Coppervale	0942	5206	1	L	T	T
		CHESTER	0941	4530	1,2,3,4	L		
293	EASTERN PLUMAS	Boulder Creek	1231	5000	1	P	T	T
		Meadow View	1233	6057	1	P		
		Crocker	1234	5800	1	P		
		Mohawk	1226	4400	1	P		
		QUINCY			2,3,5	P		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
295	SIERRA VALLEY	Beckwourth	1227	4900	1	P	B	B
		QUINCY			3,5	P		
300	SMARTVILLE-AUBURN	Smartville	1721	835	1,4	CDF	B	B
		Wolf Creek LO	1821	2636	1,4	CDF		
		Iron Mine	2022	1590	1	CDF		
		NEVADA CITY			3	CDF		
305	CONSUMNES	Pilot Hill	2124	1242	1	CDF	G	G
		Pine Hill LO	2122	2056	1,4	CDF		
		El Dorado	2123	1554	1	CDF		
		SUTTER HILL	2212	1580	1,3,4,5	CDF		
320	SAN ANDREAS-KEYSTONE	Fowler Peak	4313	2900	1,4	CDF	B	B
		Rushing Mtn.	4212	1516	1	CDF		
		SAN ANDREAS	4312	1085	1,3,4	CDF		
330	YUBA	Camptonville	1921	2900	1	T	T	T
		Banner Mtn.	1911	3904	1	CDF		
		Wolf Creek LO	1821	2636	1,4	CDF		
		Forest Hill	1914	3365	1	T		
		NEVADA CITY			2,3	CDF		
335	PACIFIC	Georgetown	4411	3000	1,2,5	E	T	T
		Bald Mtn.	4412	4613	1	E		
		Mt. Danaher	2131	3408	1,4	CDF		
		Armstrong Hill	4425	5740	1	E		
		PACIFIC R.S.			3	E		
340	GARDEN VALLEY-PINE GROVE	Garden Valley	2121	1900	1	CDF	B	B
		Mt. Zion	2221	2968	1	CDF		
		Howell Mtn.	2031	2613	1	CDF		
		MT. DANAHER	2131	3408	1,3,4	CDF		
345	SIERRA VISTA	Groveland			2	Sta	T	T
		Sierra Vista	4314	2800	1	CDF		
		Beaver Creek	4215	4400	1	CDF		
		Arnold	4316	3900	1	CDF		
		SAN ANDREAS			3	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
348	SONORA- GROVELAND	Mt. Elizabeth Groveland SONORA	4528 4511 4211	4938 3200 1800	1 1,5 1,3	Sta Sta CDF	B	B
350							T	T
360	BAILEY RIDGE	Bailey Ridge Blue Mtn. LO Groveland SAN ANDREAS	4315 4522	4600 6067	1 1 2 3	CDF CDF Sta CDF	T	T
370	TUOLUMNE	Woods Ridge Pinecrest GROVELAND	4533 4530	6000 6000	1 1,2 3,5	Sta Sta Sta	T	T
380	SAGEHEN	Sierraville TRUCKEE	1931 1933	4975 6000	1,4 1,2,3,5	T T	T	T
383	TAHOE	Stateline Tahoe Camp Spooner TRUCKEE	1941 1942 9008	6900 6240 7032	1 1 1 2,3,5	T T NEV T	T	T
385	LAKE VALLEY	Angora Ridge Spooner MEYERS	4441 9008 4442	7300 7032 6337	1 1 1,2,3	E NEV E	T	T
AREA "A"	NEVADA SIERRA FRONT	Peavine Bowers RENO	9001 9005	5300 5100	1 1,5 3	NEV NEV NEV	B	B
400	HORNITOS- RAYMOND	Green Mtn. Red Top MARIPOSA	4115 4011	1374 1900	1 1,4 3	CDF CDF CDF	G	G

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
410	EASTSIDE	Springville	5234	1100	1	Seq	G	G
		Copper Peak	5511	1600	1	CDF		
		Piedra	5512	538	1	CDF		
		Fountain Springs	5314	791	1	CDF		
		VISALIA			3	CDF		
415	BAKERSFIELD	Woody	5913	1642	1,4	KCo	G	G
		BAKERSFIELD			3	KCo		
420	MARIPOSA	Penon Blanco	4111	2800	1,4	CDF	B,	B
		Jerseydale	4812	3400	1	Si	T	
		MARIPOSA	4113	2100	1,2,3,4	CDF		
424	NORTH FORK	Red Top	4011	1900	1,4	CDF	G,	G
		Deadwood	4012	4535	1	CDF	B,	
		NORTH FORK	4813	2665	1,2,3,4,5	Si	T	
428	MOUNTAIN REST	Mountain Rest	4814	4100	1,2	Si	G,	B
		Trimmer	4817	1540	1	Si	B,	
		FENCE MEADOW	4825	5246	1,3	Si	T	
430	MIRAMONTE	Ash Mtn. Hdq.	5131	1738	1,4	SNP	G,	G
		Bear Mtn.	5513	3400	1	CDF	B	
		PINEHURST	5232	4200	1,3	Seq		
435	SEQUOIA-KINGS CANYON PARK	Grant Grove	5143	6660	1	SNP	T	T
		Cahoon Rock	5141	9400	1	SNP		
		PINEHURST	5232	4200	1,2,3	Seq		
438	SPRINGVILLE-HOT SPRINGS	Hot Springs	5221	3000	1,4,5	Seq	G,	B
		Fulton	5222	3500	1	Seq	B	
		Springville	5234	1100	1	Seq		
		PORTERVILLE			3	Seq		
440	UPPER KERN	Hot Springs	5221	3000	1,2,4,5	Seq	T	T
		Bald Mtn.	5262	9430	1	Seq		
		Johnsondale	5224	4760	1	Seq		
		PORTERVILLE			3	Seq		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
443	MONACHE	Tunnel	4921	8900	1	Inyo	T	T
		Lee Vining			2	Inyo		
		BISHOP			3	Inyo		
445	KERN RIVER	Kernville	5212	2635	1	Seq	G,	B
		Democrat Springs	5216	2376	1	Seq	B	
		PORTERVILLE			3	Seq		
448	TEHACHAPI MOUNTAINS	Keene	5941	2780	1	KCo	G,	G
		Lebec	5931	3583	1,4	KCo	B	
		BAKERSFIELD			3	KCo		
450	YOSEMITE-HIGH SIERRA	Crane Flat	4622	6700	1	YNP	T	T
		Henness Ridge	4621	6400	1	YNP		
		Wawona	4617	3960	1	YNP		
		Minarets	4841	5180	1	SI		
		WESTFALL	4821	4800	1,2,3	SI		
460	MONO PLATEAU	Rock Creek	4912	7200	1	Inyo	B,	T
		Lee Vining	4913	7200	1,2,5	Inyo	T	
		MAMMOTH	4911	7800	1,3	Inyo		
480	OWENS VALLEY	Lone Pine	4951	3727	1	Inyo	B	B
		BISHOP	4941	4145	1,3	Inyo		
490						KCo		
500	FELTON-SOUTHWESTERN SAN MATEO COUNTY	Chalks	3611	1600	1	CDF	B	B
		FELTON	3621	286	1,3,4	CDF		
505	MONTEREY BAY	Sid Ormsbee	5892	2240	1,4	CDF	B	B
		CARMEL			3	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
507	MONTEREY	Big Sur	5691	200	1	LP	G	G
	SOUTH COAST	Pacific Valley	5607	150	1	LP		
		KING CITY			3	LP		
510	SAN LUIS COAST	Nipomo	6013	330	1	CDF	G	G
		SAN LUIS OBISPO	6012	240	1,3,4	CDF		
512	WESTERN SANTA BARBARA COUNTY	SANTA YNEZ	6201	600	1,3	SBCo	B	B
514	SANTA BARBARA FRONT	San Marcos Pass	6318	2275	1	LP	B	B
		Mountain Drive	6317	650	1	LP		
		LOS PRIETOS			3,5	LP		
518	SOUTH BAY AND NORTHERN SANTA CLARA VALLEY	Alma	3532	700	1	CDF	B	B
		Stevens Creek	3536	570	1	CDF		
		CENTRAL STATION	3413	425	1,3,5	CDF		
520	SANTA CRUZ MOUNTAINS	Allen LO	3423	2250	1	CDF	T	T
		Eagle Rock LO	3622	2488	1,4	CDF		
		Saratoga Summit	3531	2950	1	CDF		
		Loma Prieta	3534	3806	1,4	CDF		
		Central Station			2,5	CDF		
		FELTON			3	CDF		
525	SAN BENITO	Bear Valley	5723	1479	1	CDF	B	B
		Call Mtn. LO	5732	3886	1	CDF		
		Beaver Dam	5742	1500	1	CDF		
		Chalone Peak	5821	3287	1	CDF		
		HOLLISTER			3	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
530	DIABLO RANGE-WEST SLOPE	Round Top	3231	1761	1,4	CDF	B	B
		Smith Creek	3523	2150	1	CDF		
		Pacheco	3552	319	1,4	CDF		
		Sunol	3301	300	1	CDF		
		MORGAN HILL			3,5	CDF		
535	SAN ANTONE	SAN ANTONE	3521	2500	1,3	CDF	B	B
540	DIABLO RANGE-EAST SLOPE	Mt. Oso	3801	3355	1	CDF	B	B
		CASTLE ROCK	3701	505	1,3	CDF		
545	ANTELOPE	Antelope	5751	1400	1	CDF	G	G
		HOLLISTER			3	CDF		
547	WEST SIDE	Basalt LO	3901	1703	1	CDF	G,	B
		Oilfields	5525	902	1,4,5	CDF	B	
		Joaquin Murietta	5526	1900	1	CDF		
		Smith Mtn.	5841	3967	1,4	CDF		
		Cottonwood Pass	5527	1075	1	CDF		
		SANGER			3	CDF		
550	CARMEL VALLEY	Tularcitos	5801	395	1	CDF	B	B
		CARMEL			3	CDF		
553	SOUTH SANTA CLARA VALLEY	Pacheco	3552	319	1,4	CDF	B	B
		MORGAN HILL	3541	320	1,3,4,5	CDF		
558	HOLLISTER	HOLLISTER	5711	350	1,3	CDF	G	G
560	SANTA LUCIA RANGE	Chews Ridge	5602	5060	1,4	LP	B	B
		Arroyo Seco	5612	800	1,4,5	LP		
		Cone Peak	5692	560	1	LP		
		The Indians	5605	2085	1	LP		
		KING CITY			3	LP		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
562	ROCKY BUTTE	Rocky Butte	6011	3438	1,4	CDF	B	B
		SAN LUIS OBISPO			3	CDF		
565	ADELAIDA-LOCKWOOD	Calandra	5853	2801	1,4	CDF	B	B
		Hunter Liggett	5842	1100	1	USA		
		Las Tablas	6014	900	1	CDF		
		KING CITY			3	CDF		
570	SALINAS VALLEY	Gonzales CDF	5834	173	1	CDF	G	G
		Bradley	5833	552	1	CDF		
		KING CITY			3	CDF		
575	PASO ROBLES	Paso Robles	6021	800	1,5	CDF	G	G
		SAN LUIS OBISPO			3	CDF		
580	PARKFIELD-SHANDON	Smith Mtn.	5841	3967	1,4	CDF	G	G
		Shandon	6031	1030	1	CDF		
		SAN LUIS OBISPO			3	CDF		
582	SANTA MARGARITA-LA PANZA	Pozo	6363	1457	1,4	LP	B	B
		Hi Mtn.	6364	3180	1	LP		
		Branch Mtn.	6365	3773	1	LP		
		SAN LUIS OBISPO			3	LP		
585	UPPER SANTA MARIA DRAINAGE	Branch Mtn.	6365	3773	1	LP	B	B
		Pine Canyon	6341	825	1	LP		
		Figueroa	6342	3150	1	LP		
		SANTA MARIA			3	LP		
586	UPPER SANTA YNEZ DRAINAGE	Figueroa	6342	3150	1	LP	B	B
		La Cumbre	6321	3985	1,4	LP		
		LOS PRIETOS	6331	1000	1,3,4,5	LP		
588	CUYAMA	McPherson LO	6371	5747	1	LP	B	B
		CUYAMA R.S.	6372	2747	1,3,4	LP		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
590	CARRIZO PLAINS	Soda Lake	6041	2047	1	CDF	G	G
		SAN LUIS OBISPO			3	CDF		
595						KCo		
598	FRAZIER MTN.	CHUCHUPATE	6381	5250	1,2,3,4,5	LP	T	T
600	SOUTHERN	South Mtn.	6412	2256	1,4	VCo	B	B
	VENTURA COUNTY	Temescal	6314	1000	1	LP		
		OJAI	6313	750	1,3	LP		
605	LOS ANGELES	Monte Nido	6614	540	1	LACo	B	B
		Zuma	6604	90	1	LACo		
		MALIBU HDQ.			3	LACo		
606						CDF		
608	CAPISTRANO	El Toro	7031	452	1	CDF	G	G
		ORANGE HDQ.			3	CDF		
610	SAN DIEGO	Red Mtn.	7421	1608	1,4	CDF	B	B
	COASTAL	San Marcos	7411	516	1	CDF		
		Pala	7420	413	1,4	Clev		
		LA MESA			3	CDF		
620	SOLEDAD	Newhall	6531	1342	1,4	A	B	B
		CASTAIC	6634	1952	1,3	LACo		
622	CALABASAS	Chatsworth	6612	1240	1,5	LACo	B	B
		MALIBU HDQ.	6613	850	1,3,4	LACo		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
623	SANTA MONICA MOUNTAINS	Castro LO	6606	2824	1,5	LACo	B	B
		Lechuza	6601	1600	1	LACo		
		Topanga Tower	6605	2474	1	LACo		
		MALIBU HDQ.			3	LACo		
624	ANGELES FRONT	Little Tujunga	6540	1325	1	A	B	B
		Eaton Canyon	6621	975	1,4	LACo		
		Padua Hills	6626	1810	1	LACo		
		ARCADIA			3	A		
625	BOLERO	San Juan GS	7164	730	1	Clev	B	B
		Bolero LO	7162	1700	1,4	CDF		
		Corona	7161	700	1,4	Clev		
		Gilman LO	7012	1655	1	CDF		
		ORANGE HDQ.			3	CDF		
630	RAMONA	Valley Center	7423	1331	1,4,5	CDF	B	B
		Mt. Woodson	7442	2890	1,4	CDF		
		Black Mtn.	7141	4055	1,4	Clev		
		Alpine	7111	2024	1	Clev		
		LA MESA			3	CDF		
635	INTERNATIONAL BORDER	Tecate Peak	7444	3887	1,4	CDF	B	B
		Campo	7452	2590	1,4	CDF		
		LA MESA			3	CDF		
640	TRABUCO	Temescal	7171	1114	1	Clev	B	B
		Tenaja	7172	2000	1	Clev		
		ESCONDIDO			3	Clev		
642	WEST RIVERSIDE	West Riverside	7211	925	1	CDF	B	B
		Padua Hills	6626	1810	1	LACo		
		PERRIS			3,5	CDF		
645	PERRIS	San Jacinto	7231	1560	1,4	CDF	B	B
		PERRIS	7221	1469	1,3,5	CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
650	OJAI INLAND	Nordhoff	6312	4477	1	LP	B	B
		Grade Station	6380	5680	1	LP		
		OJAI			3	LP		
651	MUTAU-SESPE	Grade Station	6380	5680	1	LP	B	B
		Gold Hill	6389	2900	1	LP		
		CHUCHUPATE			3,5	LP		
652	SAUGUS	Warm Springs	6525	4006	1	A	B	B
		Sierra Pelona	6528	4857	1	A		
		Vincent	6633	3135	1	LACo		
		ARCADIA			3	A		
655	SAN GABRIEL MOUNTAINS	Mendenhall LO	6551	4650	1	A	B	B
		Clear Creek	6549	3600	1	A		
		Vetter Mtn.	6952	5903	1	A		
		Tanbark	6585	2700	1,5	A		
		ARCADIA			3	A		
660	SAN BERNARDINO	Little Mtn.	6801	1890	1,4	CDF	B	B
		Lytle Creek	6912	2750	1	SB		
		DEL ROSA			3	SB		
662	CAJON	Summit LO	6831	4400	1,4	CDF	B	B
		Little Mtn.	6801	1890	1,4	CDF		
		SAN BERNARDINO			3	CDF		
665	SAN GORGONIO	Mill Creek	6922	2950	1,4	SB	B	B
		Banning	6923	3750	1	SB		
		DEL ROSA			3	SB		
670	IDYLLWILD	Keenwild	6975	4800	1,2,5	SB	T	T
		Kenworthy	6972	4600	1	SB		
		DEL ROSA			3	SB		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
673	CRANSTON	Ranger Peak	6961	5100	1	SB	B	B
		Cranston	6962	2000	1	SB		
		Red Mtn. LO	6963	4600	1,4	SB		
		DEL ROSA			3	SB		
675	WARNERS	Oak Grove	7151	2751	1,4	Clev	B	B
		Warners	7453	3100	1	CDF		
		LA MESA			3	CDF		
680	PALOMAR	Boucher Hill	7422	5446	1,4	CDF	B	B
		Julian	7451	4220	1,4	CDF		
		Pine Hills	7122	3800	1	Clev		
		Descanso	7112	3500	1,4,5	Clev		
		LA MESA			3	CDF		
685	CAMERON	Laguna	7132	6000	1	Clev	B	B
		Cameron	7121	3300	1	Clev		
		ESCONDIDO			3	Clev		
690	ANGELES DESERT FRONT	Big Pines	6596	6861	1	A	B	B
		Valyermo	6562	3700	1,4	A		
		Vincent	6633	3135	1	LACo		
		ARCADIA			3	A		
692	ARROWHEAD-BIG BEAR	Converse	6921	5618	1	SB	T	T
		Strawberry Peak	6941	6150	1,4	SB		
		Butler Peak	6951	8502	1	SB		
		Big Bear	6952	6850	1,2	SB		
		DEL ROSA			3	SB		
694	SAN BERNARDINO DESERT FRONT	Big Pine Flats	6933	6823	1	SB	B	B
		Rock Camp	6935	4900	1	SB		
		Hesperia	6821	3190	1	CDF		
		Yucca Valley	6811	3250	1	CDF		
		DEL ROSA			3	SB		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

FIRE DANGER RATING AREA AND WEATHER STATION LIST

FDR AREA IDENTIFIERS		STATION DATA					FUEL TYPES	
No.	Name	Station Name	Number	Elev.	Use	Agency	BI	FLI
696	BANNING	Banning	6923	3750	1	SB	B	B
		DEL ROSA			3	SB		
697						CDF		
698						CDF		

SEE INTRODUCTORY SECTION FOR EXPLANATION OF NUMBER CODES AND SYMBOLS.

PRE-SEASON TIMBER BUILDUP STATIONS

The following list is a summary of the pre-season timber buildup stations (Use Code 2) in the Fire Danger Rating system. This summary list shows the physical location, by FDR area, of each such station and the agency responsible for its operation. The heading "FDR Areas Using Buildup" indicates the FDR area (or areas) for which the Use Code 2 stations will provide the first days buildup to all stations in that area opening later, according to the instructions on page 2 of this chapter.

Because the Use Code 2 stations usually do not begin operation until sometime just prior to May 1st it will be necessary for them to obtain a beginning timber buildup from one of the year-long weather stations (designated as Use Code 5). This figure will be obtained from the fire weather station shown under "Year-long Station to Supply Starting Buildup".

Special Note - High Rock and Parlin Fork Stations

High Rock and Parlin Fork, which are marked with the symbol (a) in the yearlong station column, normally compute Fire Load Indexes and Fire Weather Severity for Brush fuel type only. It will also be necessary that they compute timber buildup for transfer to stations in FDR areas 100 and 140 respectively. Only Parlin Fork need compute a timber burning index during the regular fire season.

PRE-SEASON TIMBER BUILDUP STATIONS

Pre-Season Buildup Stations		Physical Location in FDR Area	Agency	FDR Areas Using Buildup	Yearlong Station to Supply Starting Buildup
Name	No.				
High Rock	0196	105	CDF	100	High Rock (a)
Orleans	7552	112	SR	112	Salyer
Hoopa	0142	115	HIR	115	Salyer
Salyer	7522	115	SR	115	Salyer
Mad River	7531	130	SR	130	Salyer
Parlin Fork	2913	140	CDF	140	Parlin Fork (a)
Stonyford	2815	170	Mn	165	Stonyford
Happy Camp	0332	200	K	200	Fort Jones
Sawyers Bar	0341	202	K	202	Fort Jones
Oak Knoll	0312	204	K	204	Fort Jones
Fort Jones	0324	208	K	208	Fort Jones
Yreka	0421	210	CDF	210	Fort Jones
Mt. Hebron	0543	214	K	220	Fort Jones
Hayfork	0233	230	ST	230	Weaverville
Big Bar	0263	230	ST	230	Weaverville
Coffee Creek	0527	230	ST	230	Weaverville
Harrison Gulch	0241	238	ST	238	Weaverville
McCloud	0553	240	ST	240	Mt. Shasta
Big Bend	0513	244	ST	244	Mt. Shasta
Chester	0941	290	L	248, 290	Hat Creek
Burney	0661	249	CDF	249	Hat Creek
Hat Creek	0922	250	L	250	Hat Creek
Adin	1011	255	Mo	255	Canby
Canby	1024	258	Mo	258	Canby
Bogard	0932	262	L	262	Susanville
Susanville	1115	262	CDF	262	Susanville
Stirling City	1323	280	CDF	280	Quincy
Challenge	1214	282	P	282	Quincy
Quincy	1225	285	P	285, 293	Quincy
Nevada City	----	330	CDF	330	Georgetown
Georgetown	4411	335	E	335	Georgetown
Groveland	4511	348	Sta	345, 360	Groveland
Pinecrest	5430	370	Sta	370	Groveland
Truckee	1933	380	T	380, 383	Truckee
Meyers	4442	385	E	385	Truckee
Mariposa	4113	420	CDF	420	Groveland
North Fork	4813	424	Si	424	North Fork
Mountain Rest	4814	428	Si	428	North Fork
Pinehurst	5232	435	Seq	435	Hot Springs
Hot Springs	5221	438	Seq	440	Hot Springs
Lee Vining	4913	460	Inyo	443, 460	Lee Vining
Westfall	4821	450	Si	450	North Fork
Central Station	3413	518	CDF	520	Central Station
Chuchupate	6381	598	LP	598	Chuchupate
Keenwild	6975	670	SB	670	Keenwild
Big Bear	6952	692	SB	692	Keenwild

SEE INTRODUCTORY SECTION OF CHAPTER 7 FOR EXPLANATION OF NUMBERS AND SYMBOLS

SUMMARY OF INSTRUCTIONS FOR YEARLONG STATIONS

General

Recent experience has indicated the need for yearlong measurement of fire weather and computation of danger indexes. For this purpose a network of yearlong Stations has been established.

The weather and Danger Index data from these stations will be used to establish yearlong normals of Fire Weather Severity and Fire Load Index for groups of FDR areas.

Each of the yearlong Stations has been assigned a specific group of FDR areas, as shown on the list on page 29, and will do the following things for these areas:

a. Provide a beginning Fire Weather Severity for the start of each summers operations.

b. Provide a beginning Timber Buildup for any pre-season buildup station in these areas or, in some cases, may also serve as a pre-season buildup station, as summarized on page 24 of this chapter, and as indicated by Use Code 2 in the List of FDR Areas and Stations.

In this section the term "summer period" will mean the normal declared fire season. The term "winter period" will mean the balance of the year.

Yearlong Stations will record their weather observations and Danger Index computations on form PSW, 4400-173 (R-5, 5100-173). Each Station will also prepare a form PSW, 4400-193 (R-5, 5100-193) for each required Fire Load Index fuel type. Following are column by column instructions for winter period use of these two forms.

Form PSW, 4400-173

Column

1. Not required during winter period.

2. Not required (except stations equipped with counters should turn them on at 1200).

3,4. Follow instructions in Pt. I - Ch. 1, pp. 7-11. See also column 9, following. In addition to the usual summer period servicing of the anemometer, two other complete servicings are required at yearlong stations. These should be done around November 1st and February 1st. Follow procedures explained in Pt. I - Ch. 5, pp. 48-51. During the winter period the thinner winter grade anemometer oil should be used.

Form PSW, 4400-173 (Continued)

Column

5,6,7. Follow instructions in Pt. 1 - Ch. 1, p. 13, paying particular attention to the Special Winter Instructions. Refer to Coding Tables in Chapter 6 for instructions on how to code temperatures below 0^{o} F.

8. Follow instructions in Pt. 1 - Ch. 1, p. 5, particularly the Special Winter Instructions.

9. If station is equipped with a wind counter enter the average wind speed for the 1200-1430 period. If not so equipped enter the 1430 wind speed in this column as well as in column 4.

10. Refer to Pt. 1 - Ch. 1, p. 15, paying particular attention to the Special Cold Weather Instructions.

11,12. Refer to Pt. 1 - Ch. 1, p. 18. If you need to obtain curing data for computation of indexes for additional fuel types refer to instructions regarding FDR Area Service Groups under "List of Yearlong Stations" below.

13,14. Refer to Pt. 1 - Ch. 1, pp. 16 and 17. If you need to obtain a Timber Buildup figure at the start of the winter period see instructions regarding FDR Area Service Groups under "List of Yearlong Stations" below.

15,16,17. Compute the Burning Indexes required for the fuel types as shown on page 29 under "Assigned FLI." After all FDR areas in the "FDR Area Service Group" have begun regular summer operations, the yearlong Station will also resume regular summer operations. Refer to pp. 5-22 and FDR Area maps for information on summer operation assignments.

18. Compute Ignition Index according to instructions in Pt. 1 - Ch. 2, p. 5.

19. Compute and enter Fire Load Index for fuel type of FDR area in which yearlong Station is located. Refer to following section on the form 193 for instructions on recording FLI for additional fuel types

20. Not required during winter period.

Form PSW, 4400-193

Write your station name under the line "Forest, County, or Park."

Only columns 9 and 11 will be used. In column 9 copy the FLI from column 18 of the form 173. In column 11 compute the Fire Weather Severity by cumulating the Fire Load Indexes from column 9. Begin each year with a "0" cumulation on January 1. Follow the instructions for yearlong Stations in Pt. I - Ch. 3, p. 7. Compute the total and average each decade for column 9.

If your station is required to compute FLI for fuel types in addition to the one assigned to the FDR area in which the station is located, an additional form 193 will be used for each additional fuel type. Compute the additional Fire Load Indexes from the Ignition Index and appropriate Burning Index from the form 173 and enter in column 9 of the form 193. Continue as instructed in the paragraph above.

Be certain the fuel type for FLI is clearly indicated on each form 193, either by a red circle around the appropriate letter in the heading of column 9 or by writing the fuel type in the upper right corner of the form.

The procedure for obtaining a starting Fire Weather Severity figure for your various fuel types at the beginning of the winter period is explained below.

List of Yearlong Stations

Most of the information in the List of Yearlong Stations on page 29, following, is taken from the List of Fire Danger Rating Areas, pp. 5-22 of this chapter, with the same abbreviations being used. The only item needing further explanation is the last column, headed "FDR Area Service Groups." In this column are grouped the numbers of the FDR Areas assigned to each yearlong Station for the winter period. The FDR area number that is underlined is the area in which the yearlong Station is located and is hereafter called "home" area. The letter following (G, B, or T) is the fuel type for Danger Index computation for your home area. This same fuel type data may need to be transferred to other FDR areas in your service group at the start of the summer season.

At the beginning of the winter period, when other weather stations and FDR Areas have ceased operations, you will continue the computation of Danger Indexes based on your home area fuel type. Use the Grass or Brush curing factors or the Timber Buildup, as it stands at the end of the summer period at your own station, as the starting figures for the winter period Danger Index computations. In the same manner the accumulated Fire Weather Severity figure for your home area at the end of the summer period will be the basis for the winter period Severity accumulation. Continue accumulating the Fire Weather Severity up to and including December 31st of each year.

If you are required to compute Fire Weather Severity for additional fuel types you will find, in the listed group of areas, another area number followed by a letter designating one of the additional fuel types. This number-letter combination is not underlined. Obtain your starting winter period Fire Weather Severity accumulation from this area for the appropriate additional fuel type. Continue computations in the same manner as for your home area.

You will also need to obtain Grass or Brush curing factors or Timber Buildup figures, as they stand at the end of the summer period, from these additional areas. Ask the headquarters station responsible for rating the area to determine representative curing factors typical of the area as they exist at the end of the summer period. A Timber Buildup figure, as it stands at the end of the summer period, is to be obtained from the pre-season timber buildup station in the area.

Near the end of the winter period, if one of your assigned fuel types is Timber, you may be asked to provide a Timber Buildup figure for a pre-season timber buildup station. See pages 23 and 24 of this chapter for a summary list of yearlong Stations and the pre-season buildup stations for which they will supply these starting figures.

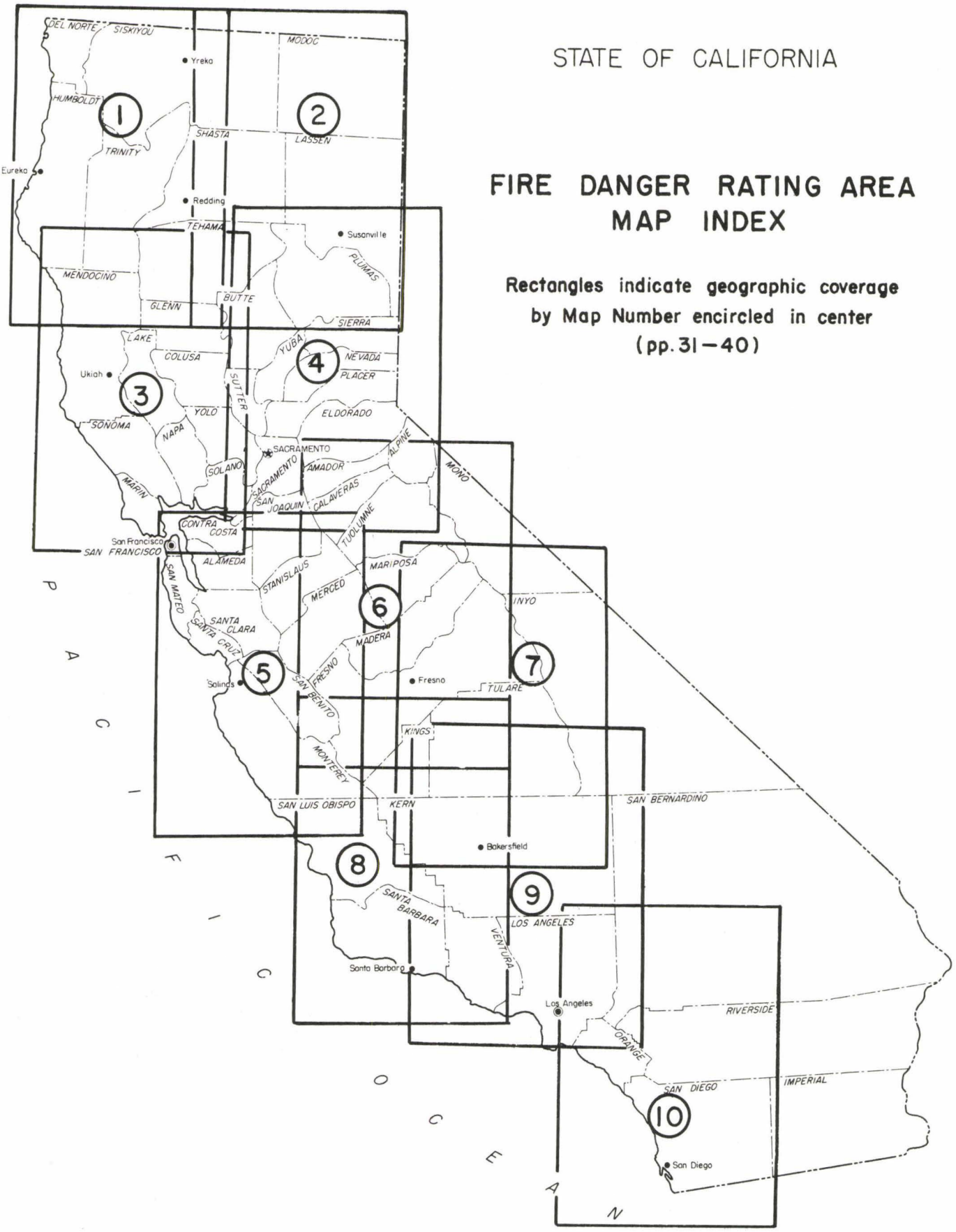
Special Symbols

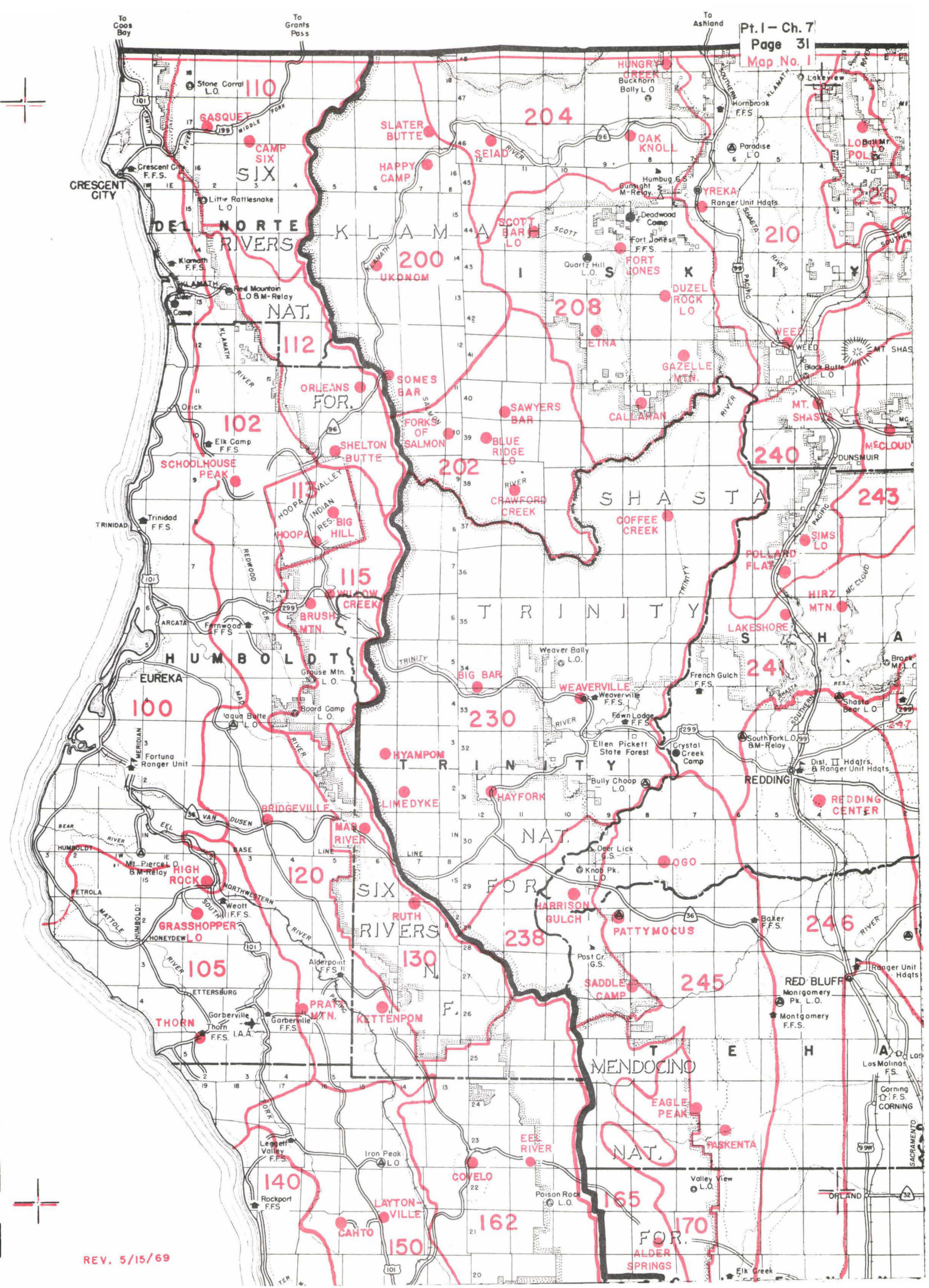
The symbol (a) refers to "Special Note" on page 23 of this chapter. The symbol (b), for Susanville, indicates that area 262 will compute Fire Load Index for two fuel types. Timber type will be used locally in field operations. Brush type is transmitted daily to the CDF Fire Control Office at Sacramento for use in a 10 area Brush fuel type sampling project of long-term duration.

YEARLONG WEATHER STATIONS

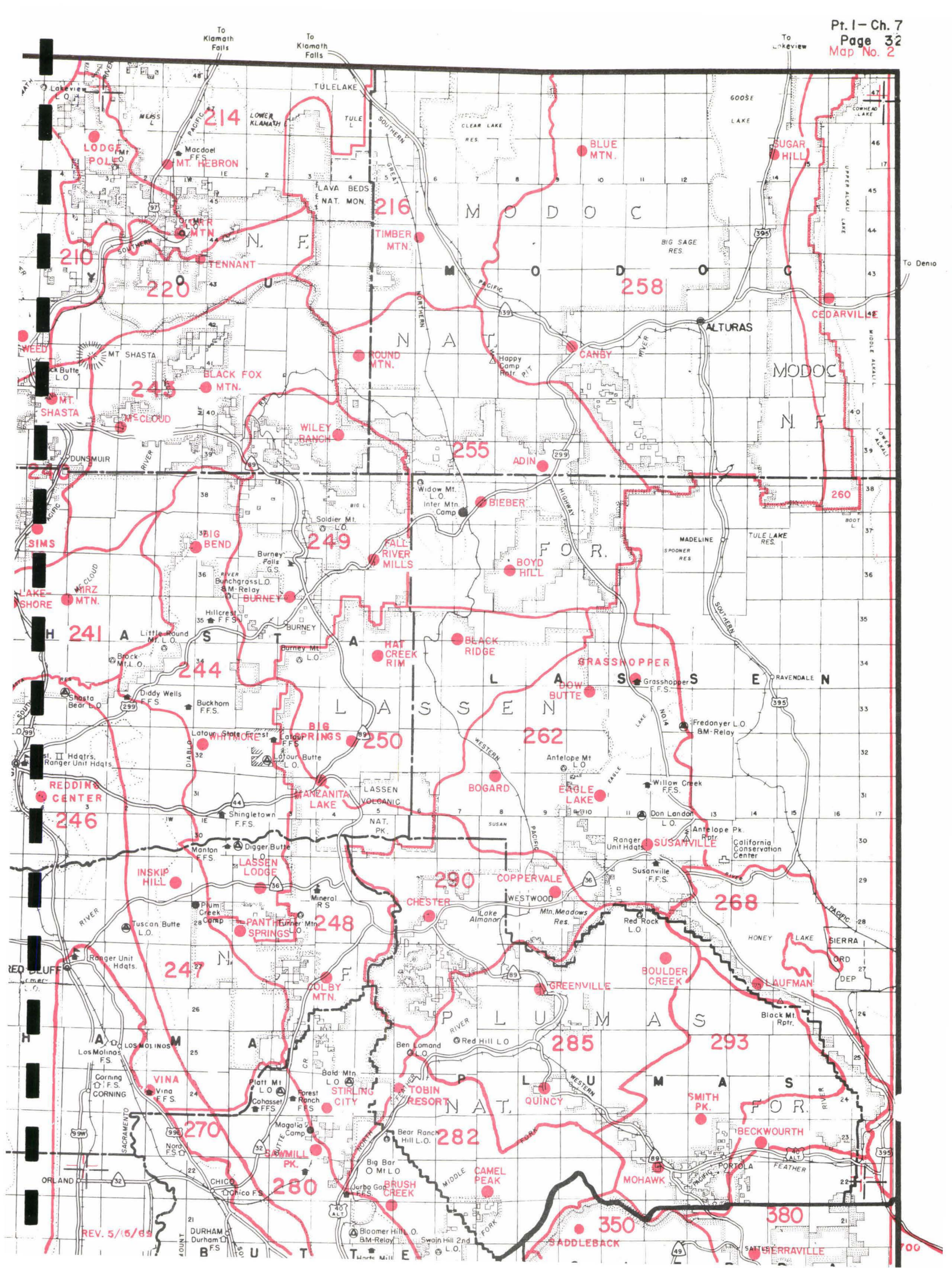
Station Name	Agency	Number	Assigned FLI	Elev.	RH Table	FDR Area Service Groups
HIGH ROCK	CDF	0196	B	575	29"	100(a), 105B, and 120
PARLIN FORK	CDF	2913	B	226	30"	140B(a), 150, 154, and 160
HEALDSBURG	CDF	3043	B	250	30"	180B and 190
MIDDLETOWN	CDF	2721	B	1105	29"	175B and 177
SALYER	SR	7522	B,T	600	29"	110B, 112, 115T, and 130
STONYFORD	Mn	2815	B,T	1200	29"	162, 165T, and 170B
FORT JONES	K	0324	B,T	2747	27"	200, 202, 204, 208T, 210, 214B, and 220
CANBY	Mo	1024	G,T	4312	25"	216G, 255, 258T, and 260
WEAVERVILLE	ST	0213	B,T	2047	27"	230T, 238, and 242B
MT. SHASTA	ST	0532	B,T	3543	27"	240T, 241B, and 244
HAT CREEK	L	0922	T	3348	27"	248, 249, 250T, and 290
SUSANVILLE	CDF	1115	B,T	4555	25"	262BT(b), 265, and 268
QUINCY	P	1225	B,T	3408	27"	280B, 282, 285T, 293, and 295
OROVILLE	CDF	1321	G,B	265	30"	246, 247B, and 270G
SUTTER HILL	CDF	2212	G,B	1580	29"	300, 305G, 320, 340B, and 400
GEORGETOWN	E	4411	T	3000	27"	330, 335T, and 350
GROVELAND	Sta	4511	B,T	3200	27"	345, 348B, 360, 370T, and 420
TRUCKEE	T	1933	T	6000	25"	380T, 383, and 385
NORTH FORK	SI	4813	G,B,T,	2665	27"	424G, 428B, and 450T
HOT SPRINGS	Seq	5221	G,B,T,	3000	27"	410G, 415, 430, 435, 438B, 440T, 445, 448, and 490
LEE VINING	Inyo	4913	B,T	7200	23"	443, 460T, and 480B
OILFIELDS	CDF	5525	G,B	902	29"	540, 545G, 547B, 590, and 595
CENTRAL STATION	CDF	3413	B,T	425	30"	500, 518B, and 520T
MORGAN HILL	CDF	3541	G,B	320	30"	525, 530, 535, 553B, and 558G
ARROYO SECO	LP	5612	G,B	800	29"	505, 507G, 550, and 560B
PASO ROBLES	CDF	6021	G,B	800	29"	510, 562, 565B, 570 575G, and 580
LOS PRIETOS	LP	6331	B	1000	29"	512, 514, 582, 585, and 586B
CHUCHUPATE	LP	6381	B,T	5250	25"	588, 598T, 650, and 651B
CHATSWORTH	LACo	6612	G,B	1240	29"	600, 606, 608G, 620 622B, and 625
CASTRO	LACo	6606	B	2824	27"	605 and 623B
VALLEY CENTER	CDF	7423	B	1331	29"	610 and 630B
TANBARK	A	6585	B	2700	27"	624, 642, 652, 655B, 660, 662, and 690
PERRIS	CDF	7221	B	1450	29"	640 and 645B
KEENWILD	SB	6975	B,T	4800	25"	665, 670T, 673B, 692 694, 696, and 697
DESCANSO	Clev	7112	B	3500	27"	635, 675, 680B, 685, and 698
BOWERS	NEV	9005	B	5100	25"	Area "A" B

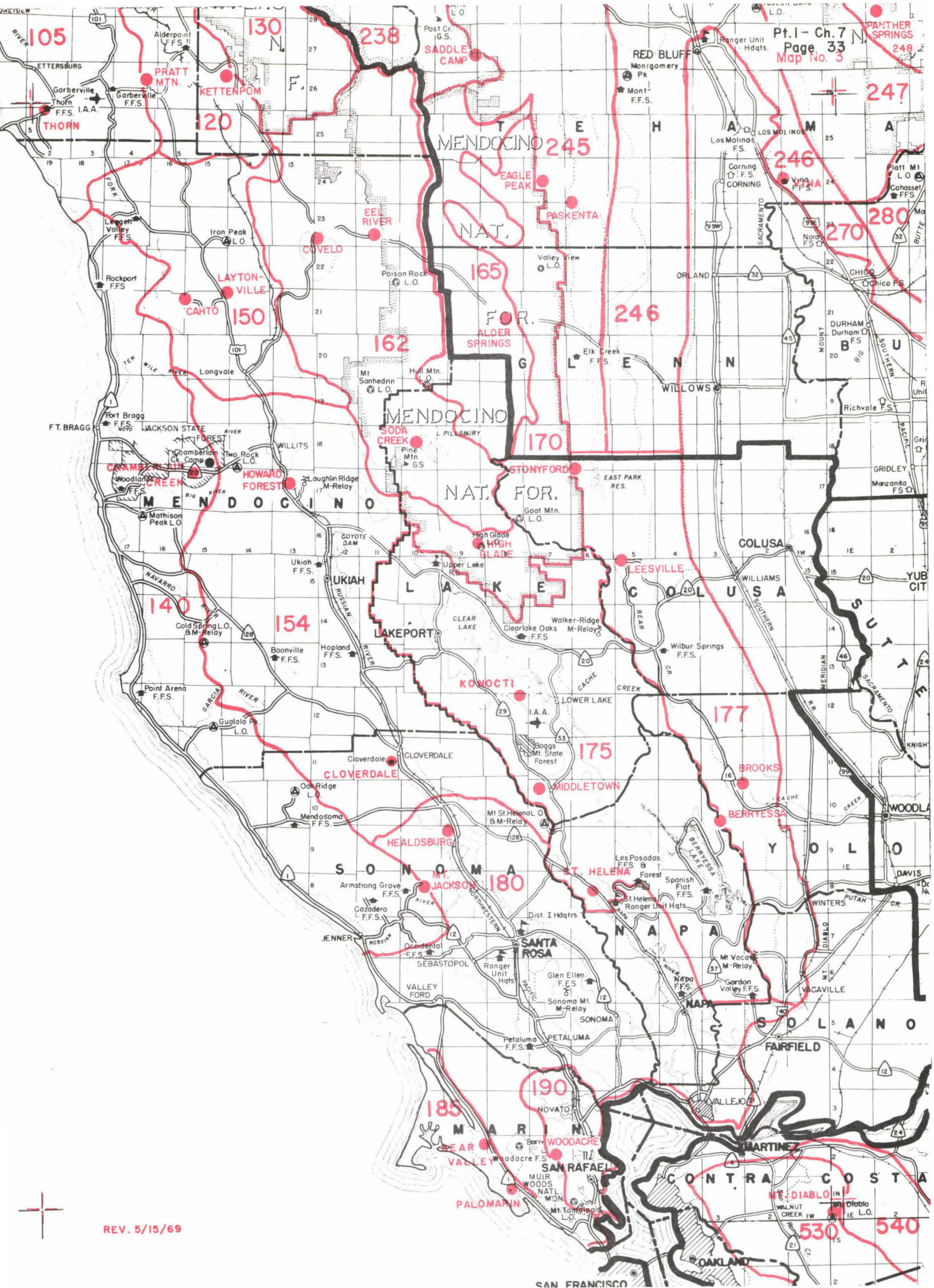
SEE PAGES 1-4, 23, AND 25 OF CHAPTER 7 FOR EXPLANATION OF NUMBERS AND SYMBOLS

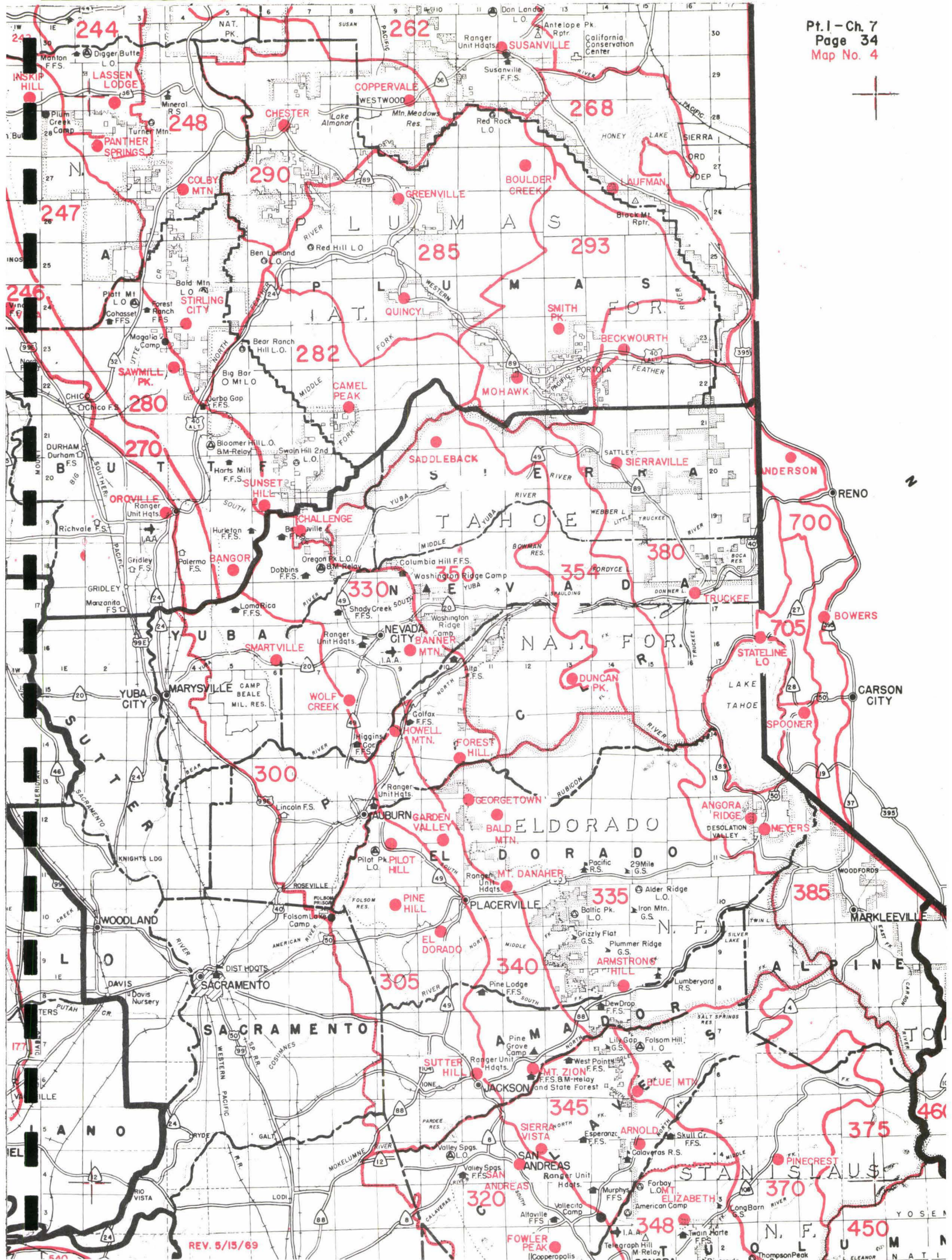

STATE OF CALIFORNIA
FIRE DANGER RATING AREA
MAP INDEX
Rectangles indicate geographic coverage
by Map Number encircled in center
(pp. 31—40)
DEL NORTE
SISKIYOU
MODOC
Yreka
HUMBOLDT
TRINITY
SHASTA
LASSEN
Eureka
Redding
TEHAMA
Susanville
PLUMAS
MENDOCINO
GLENN
BUTTE
SIERRA
LAKE
COLUSA
YUBA
NEVADA
Ukiah
SUTTER
PLACER
SONOMA
NAPA
YOLO
ELDORADO
SACRAMENTO
ALPINE
SOLANO
AMADOR
MONO
MARIN
SACRAMENTO
SAN JOAQUIN
CALAVERAS
CONTRA COSTA
TUOLUMNE
San Francisco
SAN FRANCISCO
ALAMEDA
STANISLAUS
MARIPOSA
SAN MATEO
MERCED
INYO
SANTA CLARA
SANTA CRUZ
MADERA
Salinas
SAN BENITO
Fresno
TULARE
KINGS
MONTEREY
SAN LUIS OBISPO
KERN
SAN BERNARDINO
Bakersfield
SANTA BARBARA
LOS ANGELES
VENTURA
Santa Barbara
Los Angeles
RIVERSIDE
ORANGE
SAN DIEGO
IMPERIAL
San Diego
PACIFIC OCEAN
1
2
3
4
5
6
7
8
9
10

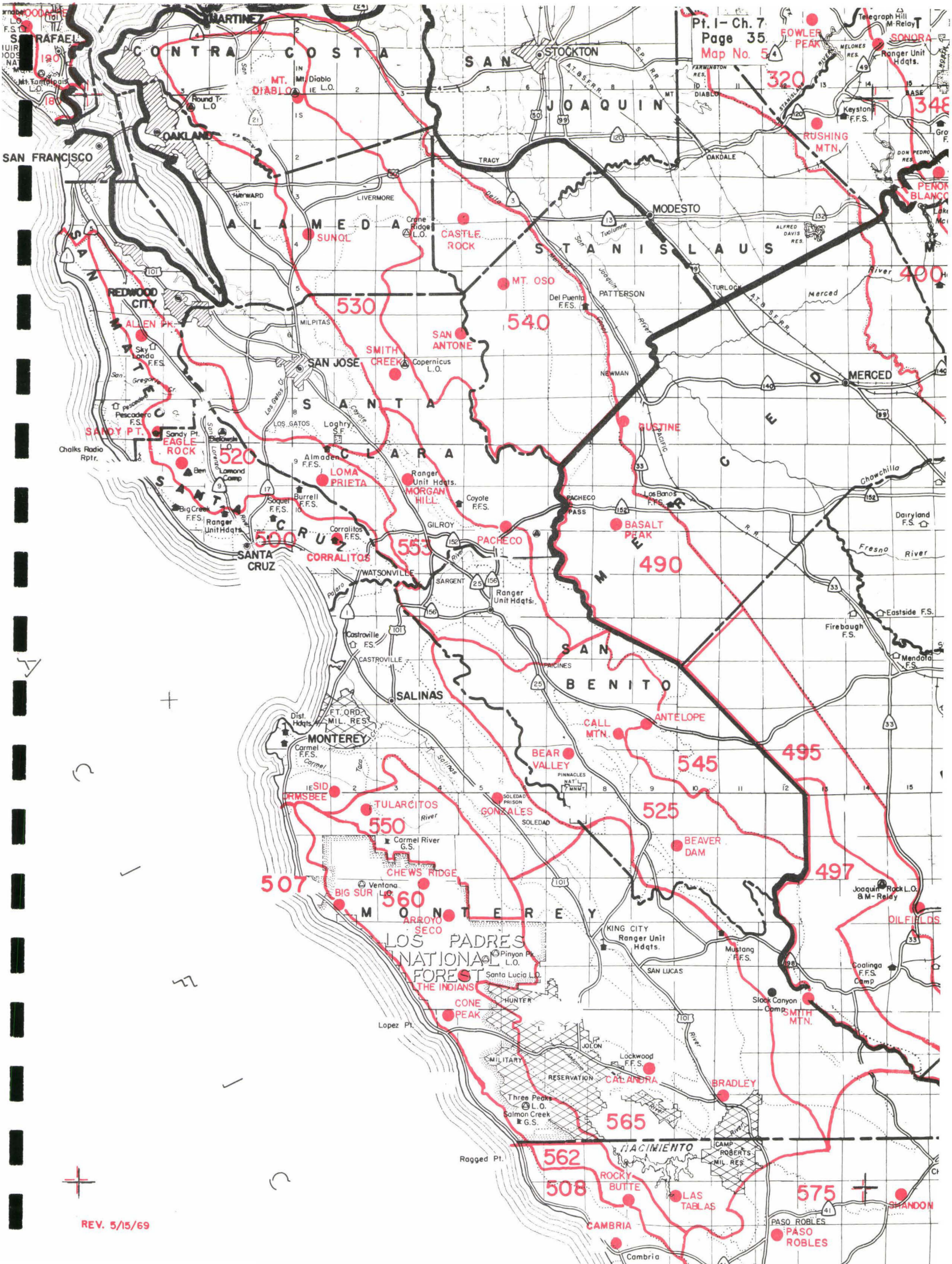

To Coos Bay
To Grants Pass
To Ashland
CRESCENT CITY
DEL NORTE
KLAMATH RIVERS
KLAMATH NAT. FOR.
SIX RIVERS NAT. FOR.
TRINITY
SHASTA
HUMBOLDT
MENDOCINO NAT. FOR.
SHASTA TRINITY
SISKIYOU
Stone Corral L.O.
110
GASQUET
CAMP SIX
Crescent City F.F.S.
Little Rattlesnake L.O.
Klamath F.F.S.
Red Mountain L.O. & M-Relay
112
SLATER BUTTE
SEIAD
HAPPY CAMP
204
HUNGRY CREEK
Buckhorn Bally L.O.
OAK KNOLL
Hornbrook F.F.S.
Lakeview
Paradise L.O.
LOOKOUT POINT
Bell Mt. L.O.
220
Sunlight M-Relay
Humbug G.S.
YREKA
Ranger Unit Hdqts.
Deadwood Camp
SCOTT BAR L.O.
Fort Jones F.F.S.
210
200
UKONOM
Quartz Hill L.O.
FORT JONES
DUZEL ROCK L.O.
208
ETNA
WEED
MT. SHASTA
Black Butte L.O.
GAZELLE MTN.
CALLAHAN
MT. SHASTA
240
McCLOUD
DUNSMUIR
243
ORLEANS
SOMES BAR
FORKS OF SALMON
SAWYERS BAR
BLUE RIDGE L.O.
202
CRAWFORD CREEK
COFFEE CREEK
SIMS L.O.
POLLARD FLAT
HIRZ MTN.
LAKESHORE
241
102
Orick
Elk Camp F.F.S.
SCHOOLHOUSE PEAK
SHELTON BUTTE
113
HOOPA VALLEY IND. RES.
HOOPA
BIG HILL
Trinidad F.F.S.
TRINIDAD
115
WILLOW CREEK
BRUSH MTN.
ARCATA
Fernwood F.F.S.
EUREKA
100
Grouse Mtn. L.O.
Board Camp L.O.
Iaqua Butte L.O.
Weaver Bally L.O.
BIG BAR
WEAVERVILLE
Weaverville F.F.S.
French Gulch F.F.S.
Fawn Lodge F.F.S.
230
Ellen Pickett State Forest
Crystal Creek Camp
South Fork L.O. & M-Relay
Shasta Bear L.O.
247
Dist. II Hdqtrs. & Ranger Unit Hdqts.
REDDING
Bully Choop L.O.
HYAMPOM
HAYFORK
LIMEDYKE
REDDING CENTER
Fortuna Ranger Unit
BRIDGEVILLE
MAD RIVER
Mt. Pierce L.O. & M-Relay
HIGH ROCK
120
Deer Lick G.S.
OGO
Knob Pk. L.O.
HARRISON GULCH
PATTYMOCUS
Baker F.F.S.
246
238
Post Gr. G.S.
SADDLE CAMP
245
RED BLUFF
Montgomery Pk. L.O.
Montgomery F.F.S.
Ranger Unit Hdqts.
Los Molinos F.S.
Corning F.F.S.
CORNING
Petrola
Weott F.F.S.
GRASSHOPPER
HONEYDEW L.O.
105
Alderpoint F.F.S.
RUTH
130
Ettersburg
Garberville Thorn F.F.S.
THORN
Garberville F.F.S.
PRATT MTN.
KETTENPOM
EAGLE PEAK
PASKENTA
EEL RIVER
Leggett Valley F.F.S.
Iron Peak L.O.
COVELO
Poison Rock L.O.
Valley View L.O.
ORLAND
140
165
170
Rockport F.F.S.
LAYTONVILLE
CAHTO
162
150
ALDER SPRINGS
Elk Creek
Redwood Creek
Mattole River
Eel River
Van Dusen
Northwestern
Pacific
Southern Pacific
Trinity River
Sacramento River

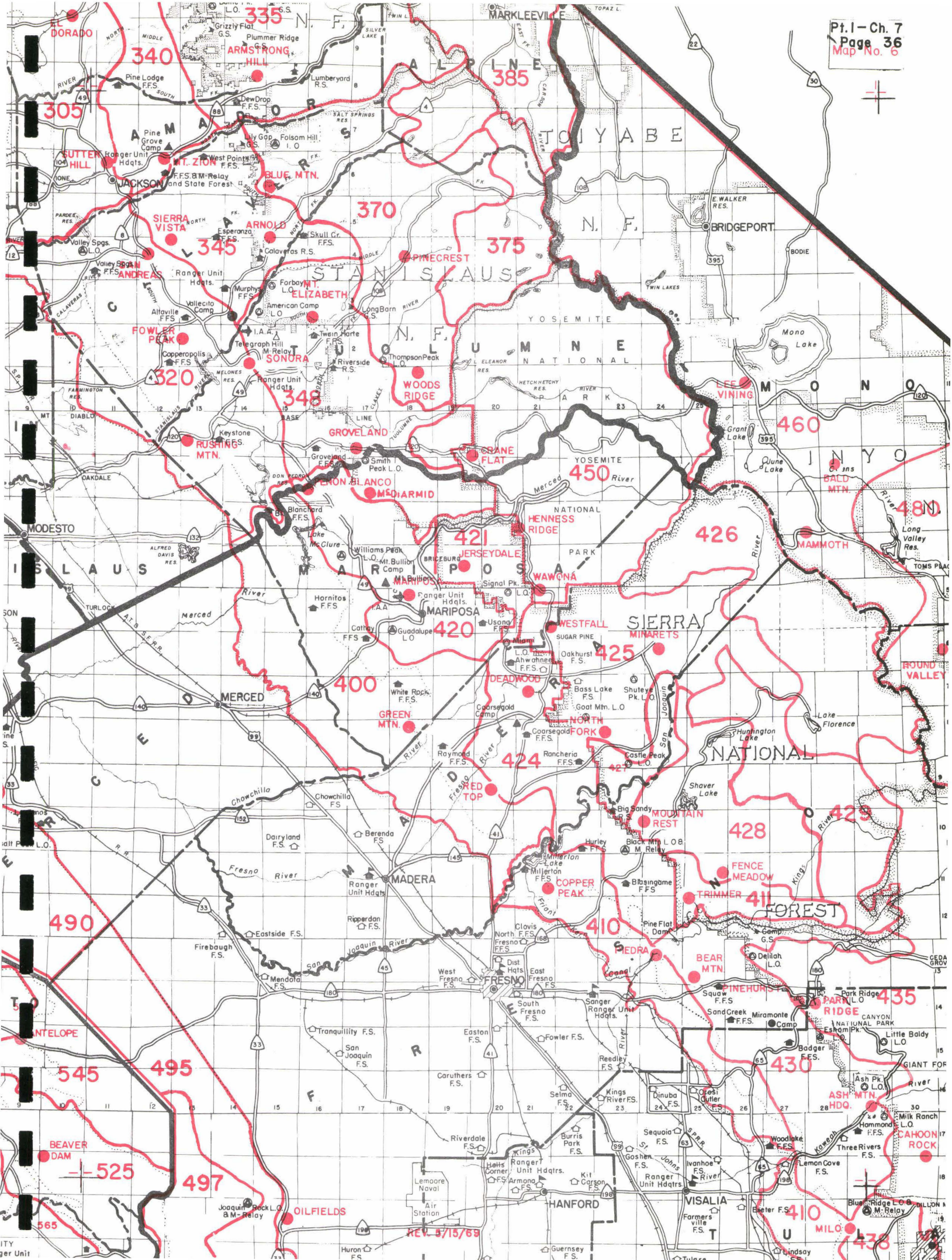
REV. 5/15/69

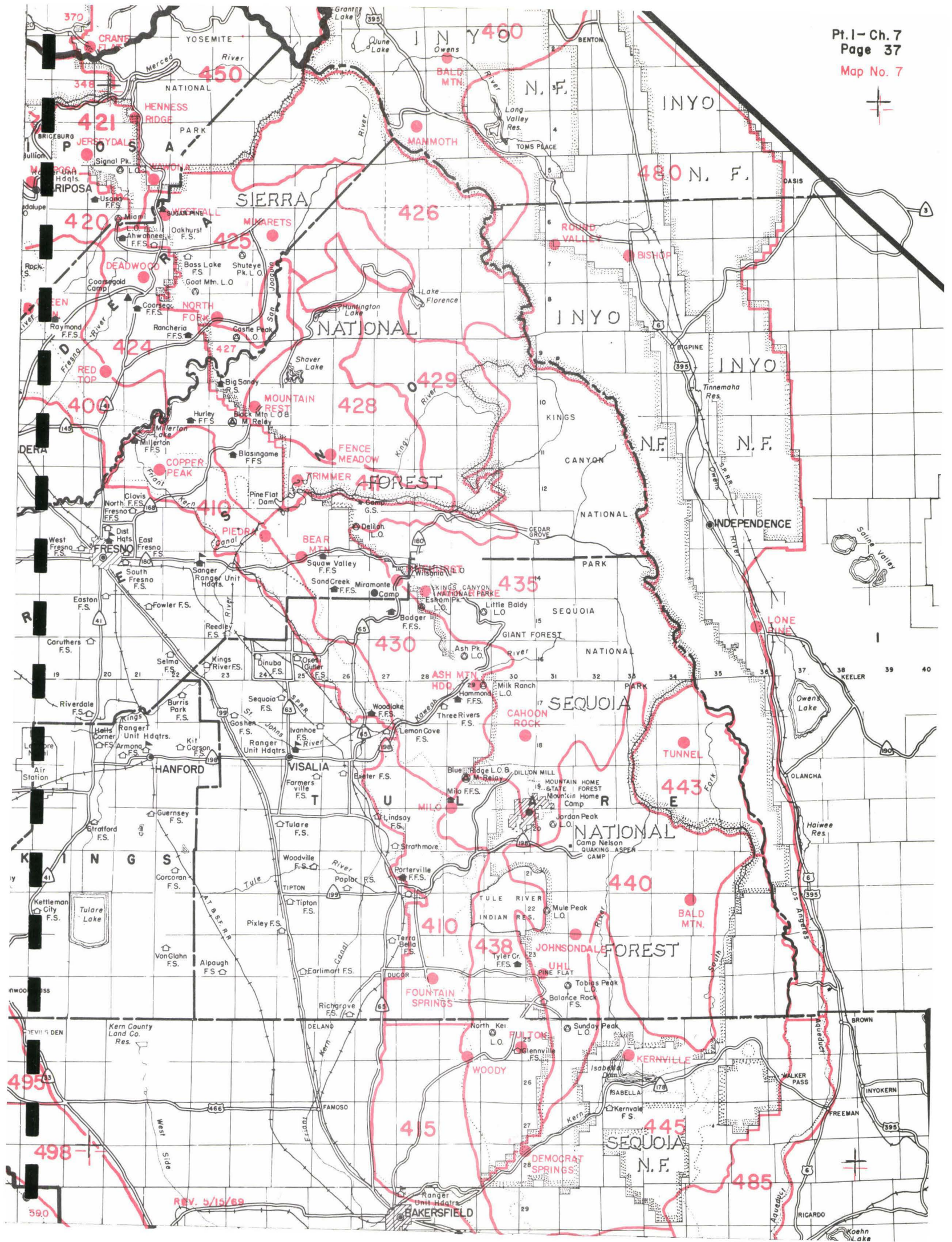

To Klamath Falls
To Klamath Falls
To Lakeview
To Denio
TULELAKE
LAVA BEDS NAT. MON.
LOWER KLAMATH
CLEAR LAKE RES.
GOOSE LAKE
COWHEAD LAKE
BLUE MTN.
SUGAR HILL
LODGE POLE
MT. HEBRON
Macdoel F.F.S.
TIMBER MTN.
TENNANT
BIG SAGE RES.
ALTURAS
CEDARVILLE
CANBY
WEED
MT SHASTA
BLACK FOX MTN.
MT. SHASTA
MT. CLOUD
ROUND MTN.
Happy Camp Rptr. P.T.
MODOC N.F.
WILEY RANCH
DUNSMUIR
ADIN
Widow Mt. L.O.
Inter Mtn. Camp
BIEBER
Soldier Mt. L.O.
SIMS
BIG BEND
FALL RIVER MILLS
BOYD HILL
MADELINE
SPOONER RES
TULE LAKE RES.
LAKE-SHORE
MRZ MTN.
Burney Falls G.S.
Bunchgrass L.O. & M-Relay
BURNEY
Hillcrest F.F.S.
Little Round Mt. L.O.
Burney Mt. L.O.
HAT CREEK RIM
BLACK RIDGE
GRASSHOPPER
Grasshopper F.F.S.
RAVENDALE
Brock Mt. L.O.
Shasta Bear L.O.
Diddy Wells F.F.S.
Buckhorn F.F.S.
DOW BUTTE
LASSEN
Fredonyer L.O. & M-Relay
Latour F.F.S.
Latour Butte L.O.
BIG SPRINGS
Antelope Mt. L.O.
Willow Creek F.F.S.
REDDING CENTER
LASSEN VOLCANIC NAT. PK.
BOGARD
EAGLE LAKE
Don Landon L.O.
Shingletown F.F.S.
Manton F.F.S.
Digger Butte L.O.
Ranger Unit Hdqts.
SUSANVILLE
Antelope Pk. Rptr.
California Conservation Center
INSKIP HILL
LASSEN LODGE
COPPERVALE
Susanville F.F.S.
Mineral R.S.
CHESTER
WESTWOOD
Lake Almanor
Mtn. Meadows Res.
Red Rock L.O.
Plum Creek Camp
Tuscan Butte L.O.
PANTHER SPRINGS
Turner Mtn. L.O.
HONEY LAKE
SIERRA
ORD
DEP
Ranger Unit Hdqts.
RED BLUFF
COLBY MTN.
GREENVILLE
BOULDER CREEK
LAUFMAN
Black Mt. Rptr.
PLUMAS N.F.
Ben Lomond L.O.
Red Hill L.O.
Los Molinos F.S.
LOS MOLINOS
Corning F.S.
CORNING
VINA
Vina F.F.S.
Bald Mtn. L.O.
Platt Mt. L.O.
Cohasset F.F.S.
Forest Ranch F.F.S.
STIRLING CITY
TOBIN RESORT
QUINCY
SMITH PK.
PLUMAS N.F.
Magalia Camp
Bear Ranch Hill L.O.
BECKWOURTH
SAWMILL PK.
Big Bar O Mt L.O.
PORTOLA
MOHAWK
ORLAND
CHICO
Chico F.F.S.
Jarbo Gap F.F.S.
BRUSH CREEK
CAMEL PEAK
Bloomer Hill L.O. & M-Relay
Swain Hill 2nd L.O.
SADDLEBACK
SIERRAVILLE
DURHAM
Durham F.F.S.
BUTTE
REV. 5/15/69

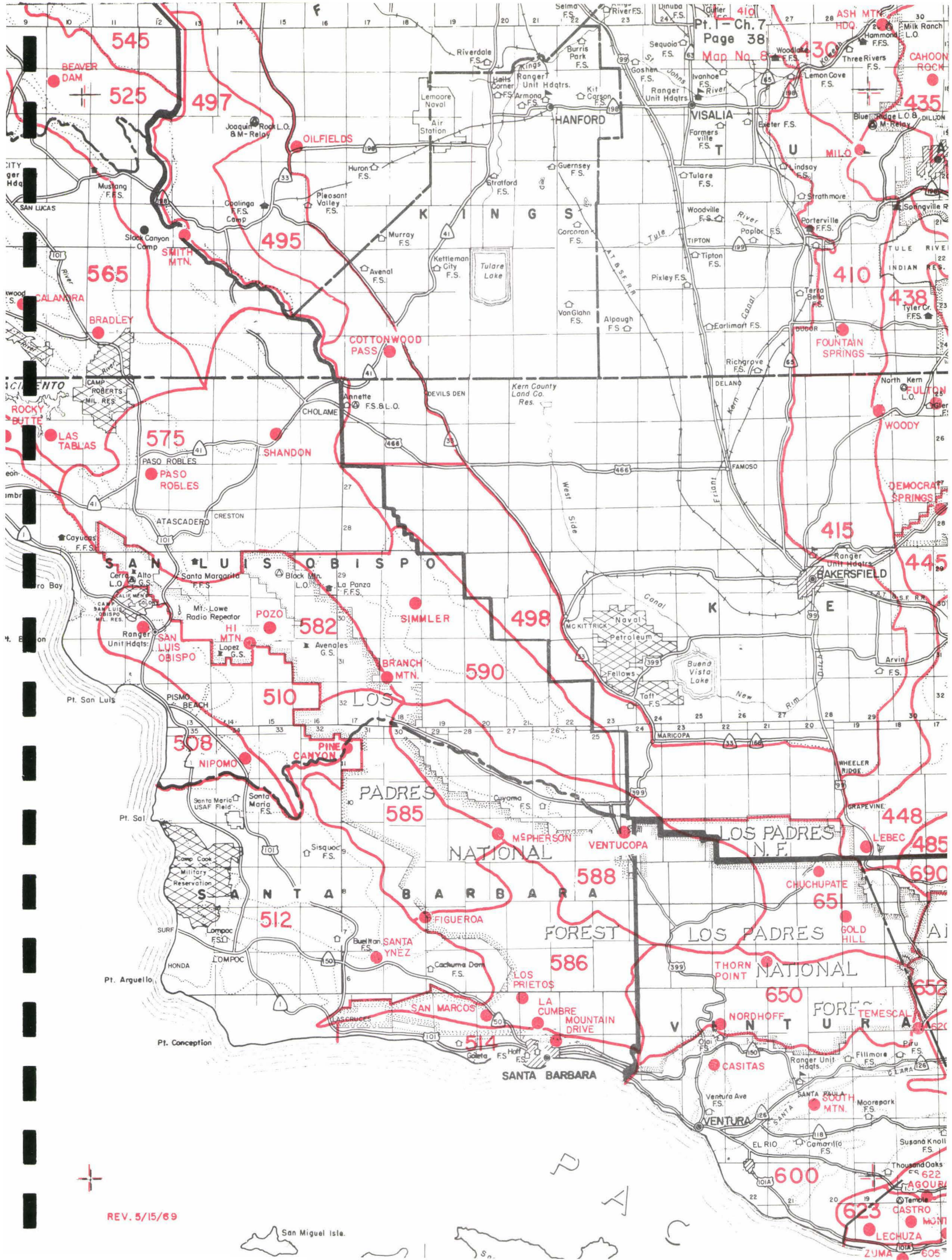

105
130
238
247
246
245
165
246
162
150
170
140
154
177
175
180
190
185
530
540
280
270
MENDOCINO NAT. FOR.
GLENN
LAKE
COLUSA
YOLO
SUTTER
NAPA
SONOMA
MARIN
SOLANO
CONTRA COSTA
PRATT MTN.
KETTENPOM
SADDLE CAMP
EAGLE PEAK
PASKENTA
EEL RIVER
COVELO
LAYTONVILLE
CAHTO
ALDER SPRINGS
SODA CREEK
STONYFORD
HOWARD FOREST
CHAMBERLAIN CREEK
HIGH GLADE
LEESVILLE
UKIAH
LAKEPORT
KONOCTI
CLOVERDALE
MIDDLETOWN
BROOKS
BERRYESSA
HEALDSBURG
ST. HELENA
MT. JACKSON
SANTA ROSA
PETALUMA
NOVATO
SAN RAFAEL
WOODACRE
MARTINEZ
FAIRFIELD
VALLEJO
NAPA
VACAVILLE
DAVIS
WOODLAND
WINTERS
WILLOWS
ORLAND
CHICO
RED BLUFF
PANTHER SPRINGS
COLUSA
WILLIAMS
YUBA CITY
OAKLAND
SAN FRANCISCO
PALOMARIN
JENNER
SEBASTOPOL
FT. BRAGG
LAYTONVILLE
LONGVALE
WILLITS
UKIAH
LAKEPORT
CLOVERDALE
HEALDSBURG
ST. HELENA
SANTA ROSA
PETALUMA
NOVATO
SAN RAFAEL
MARTINEZ
FAIRFIELD
VALLEJO
NAPA
VACAVILLE
DAVIS
WOODLAND
WINTERS
WILLOWS
ORLAND
CHICO
RED BLUFF
COLUSA
WILLIAMS
YUBA CITY
OAKLAND
SAN FRANCISCO
PALOMARIN
JENNER
SEBASTOPOL
FT. BRAGG
Thorn F.F.S. I.A.A.
Garberville F.F.S.
Alderpoint F.F.S.
Leggett Valley F.F.S.
Iron Peak L.O.
Rockport F.F.S.
Fort Bragg F.F.S.
Chamberlain Cr. Camp
Two Rock L.O.
Woodlands F.F.S.
Mathison Peak L.O.
Laughlin Ridge M-Relay
Ukiah F.F.S.
Upper Lake R.S.
Cold Spring L.O. & M-Relay
Boonville F.F.S.
Hopland F.F.S.
Point Arena F.F.S.
Gualala Pk. L.O.
Oak Ridge L.O.
Mendosoma F.F.S.
Armstrong Grove F.F.S.
Cazadero F.F.S.
Occidental F.F.S.
Ranger Unit Hqts.
Glen Ellen F.F.S.
Sonoma Mt. M-Relay
Petaluma F.F.S.
Mt St. Helena L.O. & M-Relay
Dist. I Hdqtrs.
Las Posadas F.F.S. & Forest
Spanish Flat F.F.S.
St. Helena Ranger Unit Hqts.
Mt Vaca M-Relay
Napa F.F.S.
Gordon Valley F.F.S.
Woodacre F.S.
Mt. Tamalpais L.O.
Mt. Diablo
Walnut Creek
Diablo
Cobb Mt. M-Relay
Boggs Mt. State Forest
Clearlake Oaks F.F.S.
Wilbur Springs F.F.S.
Goat Mtn. L.O.
Pine Mtn. G.S.
Mt Sanhedrin L.O.
Hull Mtn. L.O.
Poison Rock L.O.
Valley View L.O.
Elk Creek F.F.S.
Richvale F.S.
Gridley
Manzanita F.S.
Durham
Corning F.S.
Los Molinos F.S.
Vina F.F.S.
Nord F.S.
Chico F.S.
Platt Mt. L.O.
Cohasset F.F.S.
Ranger Unit Hdqts.
Monterey Pk
Mont F.F.S.
Post Cr. G.S.
Iron Peak L.O.
Mt Sanhedrin L.O.
Hull Mtn. L.O.
Poison Rock L.O.
Valley View L.O.
Goat Mtn. L.O.
Pine Mtn. G.S.
Mathison Peak L.O.
Oak Ridge L.O.
Gualala Pk. L.O.
Cold Spring L.O. & M-Relay
Laughlin Ridge M-Relay
Clearlake Oaks F.F.S.
Wilbur Springs F.F.S.
Mt St. Helena L.O. & M-Relay
Las Posadas F.F.S. & Forest
Spanish Flat F.F.S.
St. Helena Ranger Unit Hqts.
Mt Vaca M-Relay
Napa F.F.S.
Gordon Valley F.F.S.
Glen Ellen F.F.S.
Sonoma Mt. M-Relay

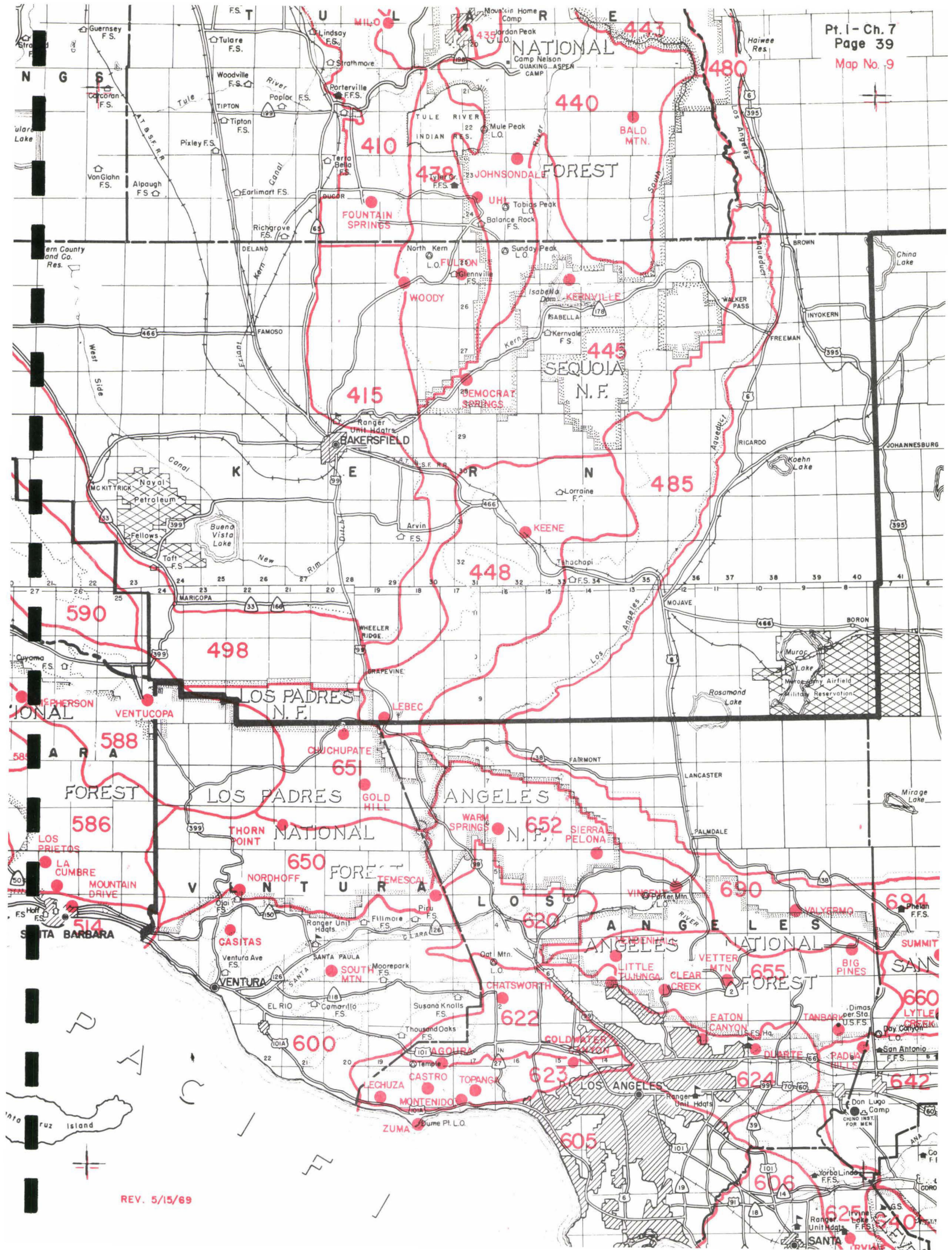

244
262
268
290
247
285
293
246
282
280
270
700
380
354
350
330
705
300
335
385
340
305
345
375
370
320
348
450
NAT. PK.
Digger Butte L.O.
Manton F.F.S.
INSKIP HILL
LASSEN LODGE
Mineral R.S.
Plum Creek Camp
Turner Mtn.
PANTHER SPRINGS
CHESTER
Lake Almanor
COPPERVALE
WESTWOOD
Mtn. Meadows Res.
Red Rock L.O.
Ranger Unit Hdqts.
SUSANVILLE
Susanville F.F.S.
Don Landon L.O.
Antelope Pk. Rptr.
California Conservation Center
HONEY LAKE
SIERRA
ORD
DEP
COLBY MTN.
GREENVILLE
BOULDER CREEK
LAUFMAN
Black Mt. Rptr.
Ben Lamond L.O.
Red Hill L.O.
PLUMAS
Bald Mtn. L.O.
Platt Mt. L.O.
Cohasset F.F.S.
Forest Ranch F.F.S.
STIRLING CITY
QUINCY
SMITH PK.
BECKWOURTH
PORTOLA
Magalia Camp
Bear Ranch Hill L.O.
SAWMILL PK.
Big Bar O Mt L.O.
Jarbo Gap F.F.S.
CAMEL PEAK
MOHAWK
CHICO
Chico F.S.
DURHAM
Durham F.S.
Bloomer Hill L.O.
BM-Relay
Swain Hill 2nd L.O.
Harts Mill F.F.S.
SADDLEBACK
SATTLEY
SIERRAVILLE
ANDERSON
RENO
BUTTE
SUNSET HILL
OROVILLE
Ranger Unit Hqts.
Richvale F.S.
CHALLENGE
Bangor F.F.S.
Hurleton F.F.S.
Palermo F.S.
BANGOR
Gridley F.S.
Oregon Pk. L.O.
Dobbins F.F.S.
Columbia Hill F.F.S.
Washington Ridge Camp
TAHOE
WEBBER L.
LITTLE TRUCKEE RIVER
BOWMAN RES.
FORDYCE L.
SPALDING
DONNER L.
TRUCKEE
BOCA RES.
BOWERS
GRIDLEY
Manzanita F.S.
Loma Rica F.F.S.
Shady Creek F.F.S.
Washington Ridge Camp
NEVADA CITY
BANNER MTN.
SMARTVILLE
YUBA
Ranger Unit Hqts.
I.A.A.
Alta F.F.S.
DUNCAN PK.
STATELINE L.O.
LAKE TAHOE
CARSON CITY
YUBA CITY
MARYSVILLE
CAMP BEALE MIL. RES.
WOLF CREEK
Golfax F.F.S.
Higgins Corner F.F.S.
HOWELL MTN.
FOREST HILL
SPOONER
SUTTER
Ranger Unit Hqts.
AUBURN
GEORGETOWN
RUBICON
ANGORA RIDGE
DESOLATION VALLEY
MEYERS
GARDEN VALLEY
BALD MTN.
EL DORADO
Pilot Pk. L.O.
PILOT HILL
KNIGHTS LDG
Pacific R.S.
29Mile G.S.
MT. DANAHER
WOODFORDS
ROSEVILLE
FOLSOM RES.
PINE HILL
PLACERVILLE
Alder Ridge L.O.
Baltic Pk. L.O.
Iron Mtn. G.S.
MARKLEEVILLE
WOODLAND
Folsom Lake Camp
Grizzly Flat G.S.
Plummer Ridge G.S.
EL DORADO
ARMSTRONG HILL
DIST HDQTS.
SACRAMENTO
DAVIS
Davis Nursery
Pine Lodge F.F.S.
Lumberyard R.S.
DewDrop F.F.S.
ALPINE
Pine Grove Camp
Lily Gap G.S.
Folsom Hill L.O.
SUTTER HILL
Ranger Unit Hqts.
West Point F.F.S.
MT. ZION F.F.S. BM-Relay and State Forest
JACKSON
BLUE MTN.
SIERRA VISTA
ARNOLD
Esperanza F.F.S.
Skull Gr. F.F.S.
Calaveras R.S.
PINECREST
SAN ANDREAS
Ranger Unit Hqts.
Valley Spgs. L.O.
Valley Spgs. F.F.S.
Murphys F.F.S.
Forbay L.O.
MT. ELIZABETH
American Camp
Long Barn G.S.
Vallecito Camp
Altaville F.F.S.
I.A.A.
Twain Harte F.F.S.
Telegraph Hill M. Relay
FOWLER PEAK
Copperopolis
Thompson Peak
RIO VISTA
LODI
REV. 5/15/69

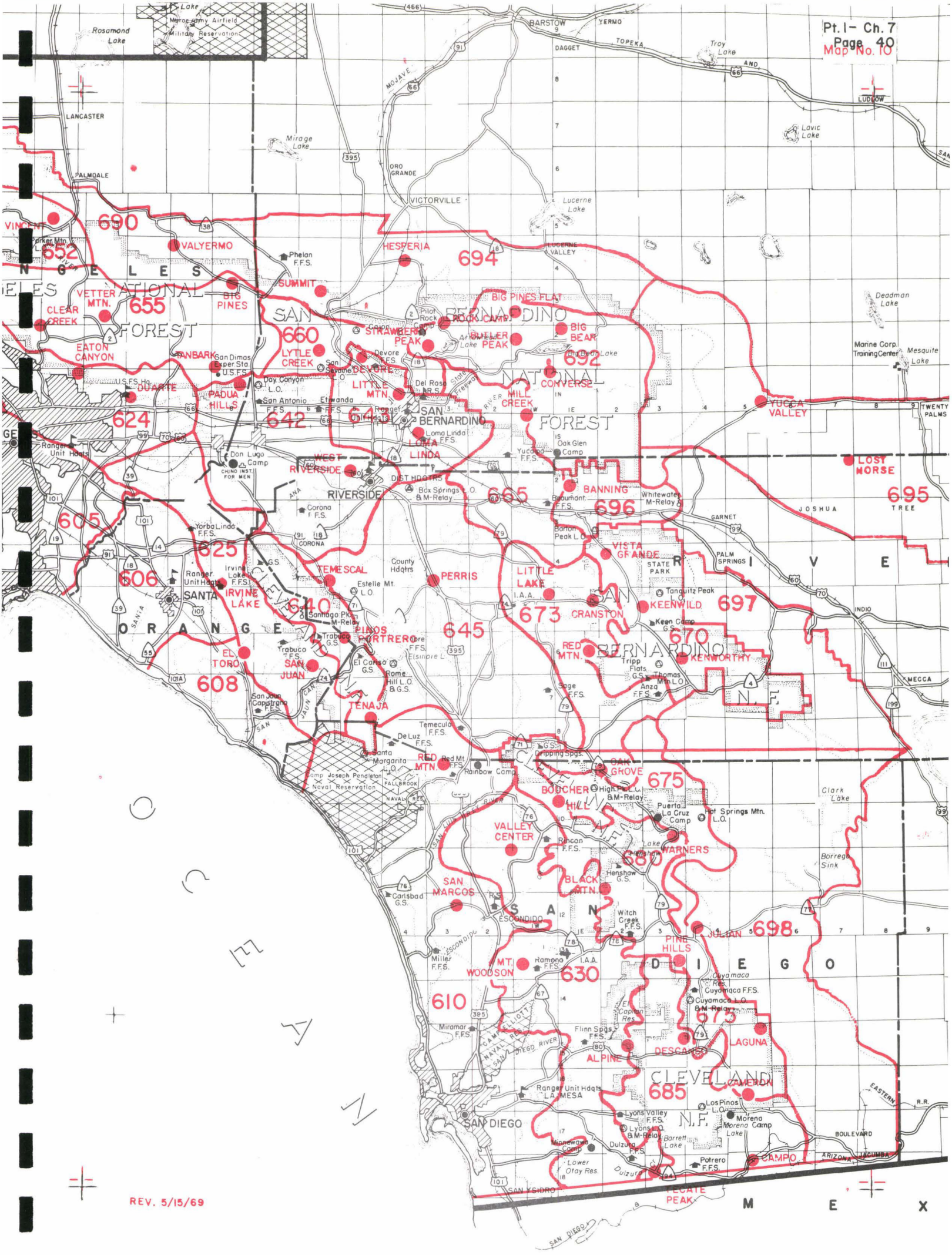

Pt. I – Ch. 7
Page 35
Map No. 5
MARTINEZ
CONTRA COSTA
MT. DIABLO
Mt. Diablo L.O.
Round Tr. L.O.
OAKLAND
SAN FRANCISCO
HAYWARD
LIVERMORE
ALAMEDA
SUNOL
Crane Ridge L.O.
CASTLE ROCK
STOCKTON
SAN JOAQUIN
TRACY
OAKDALE
MODESTO
STANISLAUS
MT. OSO
Del Puente F.F.S.
PATTERSON
TURLOCK
NEWMAN
MERCED
MERCED
REDWOOD CITY
ALLEN PK.
MILPITAS
SAN ANTONE
SMITH CREEK
Copernicus L.O.
SAN JOSE
SANTA CLARA
LOS GATOS
Loghry S.F.
Sky Londa F.F.S.
Pescadero F.S.
SANDY PT.
Sandy Pt.
EAGLE ROCK
Chalks Radio Rptr.
Ben Lomond
Lomond Camp
LOMA PRIETA
Almaden F.F.S.
Ranger Unit Hdqts.
MORGAN HILL
Coyote F.F.S.
Burrell F.F.S.
Soquel F.F.S.
Big Creek F.F.S.
Ranger Unit Hdqts.
SANTA CRUZ
Corralitos F.F.S.
CORRALITOS
GILROY
PACHECO
PACHECO PASS
Los Banos F.F.S.
BASALT PEAK
WATSONVILLE
SARGENT
Ranger Unit Hdqts.
Castroville F.S.
CASTROVILLE
SALINAS
SAN BENITO
PACINES
Dist. Hdqts.
FT. ORD MIL. RES.
MONTEREY
Carmel F.F.S.
CALL MTN.
ANTELOPE
BEAR VALLEY
PINNACLES NAT'L MNMT.
SID ORMSBEE
TULARCITOS
SOLEDAD PRISON
GONZALES
SOLEDAD
BEAVER DAM
Carmel River G.S.
CHEWS RIDGE
Ventana
BIG SUR L.O.
MONTEREY
ARROYO SECO
LOS PADRES NATIONAL FOREST
THE INDIANS
Pinyon Pk. L.O.
Santa Lucia L.O.
CONE PEAK
HUNTER
Lopez Pt.
KING CITY
Ranger Unit Hdqts.
SAN LUCAS
Mustang F.F.S.
Slack Canyon Camp
SMITH MTN.
Joaquin Rock L.O. & M-Relay
OILFIELDS
Coalinga F.F.S. Camp
Lockwood F.F.S.
CALIENTE
MILITARY RESERVATION
JOLON
Three Peaks L.O.
Salmon Creek G.S.
BRADLEY
NACIMIENTO
CAMP ROBERTS MIL. RES.
Ragged Pt.
ROCKY BUTTE
LAS TABLAS
CAMBRIA
Cambria
PASO ROBLES
PASO ROBLES
SHANDON
FOWLER PEAK
Telegraph Hill M-Relay
SONORA
Ranger Unit Hdqts.
Keystone F.F.S.
RUSHING MTN.
PENON BLANCO
Eastside F.S.
Firebaugh F.S.
Mendota F.S.
Dairyland F.S.
Fresno River
Chowchilla
Merced River
San Joaquin River
Tuolumne
Stanislaus River
Calaveras River
Salinas River
Carmel River
Pajaro River
Gregory Cr.
Los Gatos Cr.
Coyote
Soda Lake
Lompico
Big Creek
Ben Lomond
Sky Londa
Pescadero
Sandy Pt.
Eagle Rock
Loma Prieta
Morgan Hill
Pacheco Pass
Basalt Peak
Call Mtn.
Antelope
Bear Valley
Tularcitos
Chews Ridge
Big Sur
Arroyo Seco
Cone Peak
Lopez Pt.
Ragged Pt.
Rocky Butte
Las Tablas
Cambria
Paso Robles
Shandon
Rushing Mtn.
Fowler Peak
Sonora
Penon Blanco
Smith Mtn.
Oilfields
Bradley
Calaveras
Lockwood
Jolon
Military Reservation
Nacimiento
Camp Roberts Mil. Res.
Ft. Ord Mil. Res.
Pinnacles Nat'l Mnmt.
Los Padres National Forest
The Indians
Soledad Prison
Pacines
Castroville
Watsonville
Gilroy
Corralitos
Santa Cruz
Redwood City
Milpitas
Los Gatos
Loghry S.F.
Almaden F.F.S.
Burrell F.F.S.
Soquel F.F.S.
Big Creek F.F.S.
Ranger Unit Hdqts.
Sky Londa F.F.S.
Pescadero F.S.
Sandy Pt.
Chalks Radio Rptr.
Ben Lomond
Lomond Camp
Carmel F.F.S.
Carmel River G.S.
Ventana
Big Sur L.O.
Pinyon Pk. L.O.
Santa Lucia L.O.
Hunter
Three Peaks L.O.
Salmon Creek G.S.
Lockwood F.F.S.
Jolon
Military Reservation
Camp Roberts Mil. Res.
Dist. Hdqts.
Ft. Ord Mil. Res.
Pinnacles Nat'l Mnmt.
Soledad Prison
Pacines
Castroville F.S.
Watsonville
Sargent
Ranger Unit Hdqts.
Gilroy
Corralitos F.F.S.
Santa Cruz
Coyote F.F.S.
Ranger Unit Hdqts.
Los Banos F.F.S.
Pacheco Pass
Almaden F.F.S.
Loghry S.F.
Los Gatos
Copernicus L.O.
Crane Ridge L.O.
Round Tr. L.O.
Mt. Tamalpais L.O.
Mt. Diablo L.O.
Martinez
Oakland
San Francisco
Hayward
Livermore
Tracy
Oakdale
Modesto
Turlock
Newman
Merced
Patterson
Del Puente F.F.S.
Stockton
Farmington Res.
Melones Res.
Stanislaus River
Tuolumne
San Joaquin River
Merced River
Fresno River
Chowchilla
Calaveras River
Salinas River
Carmel River
Pajaro River
Gregory Cr.
Los Gatos Cr.
Coyote
Soda Lake
Lompico
Big Creek
Ben Lomond
Sky Londa
Pescadero
Sandy Pt.
Eagle Rock
Loma Prieta
Morgan Hill
Pacheco Pass
Basalt Peak
Call Mtn.
Antelope
Bear Valley
Tularcitos
Chews Ridge
Big Sur
Arroyo Seco
Cone Peak
Lopez Pt.
Ragged Pt.
Rocky Butte
Las Tablas
Cambria
Paso Robles
Shandon
Rushing Mtn.
Fowler Peak
Sonora
Penon Blanco
Smith Mtn.
Oilfields
Bradley
Calaveras
Lockwood
Jolon


EL DORADO
ARMSTRONG HILL
Grizzly Flat G.S.
Plummer Ridge G.S.
Pine Lodge F.F.S.
Lumberyard R.S.
Dew Drop F.F.S.
Pine Grove Camp
Lily Gap G.S.
Folsom Hill I.O.
SUTTER HILL
Ranger Unit Hdqts.
West Point F.F.S.
MT. ZION
JACKSON
F.F.S. & M-Relay and State Forest
BLUE MTN.
SIERRA VISTA
ARNOLD
Esperanza F.F.S.
Skull Cr. F.F.S.
Calaveras R.S.
Valley Spgs.
Valley Spgs. F.F.S.
ANDREAS
Ranger Unit Hdqts.
Murphys F.F.S.
Forbay L.O.
MT. ELIZABETH
American Camp L.O.
Altaville F.F.S.
Vallecito Camp
FOWLER PEAK
I.A.A.
Telegraph Hill M-Relay
Twain Harte F.F.S.
Copperopolis F.F.S.
SONORA
Ranger Unit Hdqts.
Riverside R.S.
Thompson Peak L.O.
WOODS RIDGE
PINECREST
Keystone F.F.S.
RUSHING MTN.
Groveland F.F.S.
Smith Peak L.O.
GROVELAND
CRANE FLAT
LYON BLANCO
McDIARMID
Lake McClure
Williams Peak L.O.
Mt. Bullion Camp
Mt. Bullion L.O.
MARIPOSA
Ranger Unit Hdqts.
Signal Pk. L.O.
WAWONA
JERSEYDALE
BRICEBURG
HENNESS RIDGE
Hornitos F.F.S.
I.A.A.
Cathey F.F.S.
Guadalupe L.O.
MARIPOSA
Usona F.F.S.
WESTFALL
SUGAR PINE
Miami L.O.
Ahwahnee F.F.S.
Oakhurst F.S.
SIERRA MINARETS
DEADWOOD
Bass Lake F.S.
Shuteye Pk. L.O.
Goat Mtn. L.O.
White Rock F.F.S.
GREEN MTN.
Coarsegold Camp
Coarsegold F.F.S.
NORTH FORK
Raymond F.F.S.
Rancheria F.F.S.
Castle Peak L.O.
RED TOP
Chowchilla
Chowchilla F.S.
Dairyland F.S.
Berenda F.S.
Hurley F.F.S.
Big Sandy R.S.
MOUNTAIN REST
Black Mtn L.O. & M. Relay
Millerton Lake
Millerton F.F.S.
COPPER PEAK
Blasingame F.F.S.
FENCE MEADOW
TRIMMER
Ranger Unit Hdqts.
MADERA
Eastside F.S.
Firebaugh F.S.
Mendota F.S.
Clovis
North Fresno F.F.S.
Dist. Hdqts.
FRESNO
West Fresno F.S.
East Fresno F.S.
South Fresno F.S.
Sanger Ranger Unit Hdqts.
Pine Flat Dam
Camp G.S.
Delilah L.O.
PIEDRA
BEAR MTN.
PINEHURST
Squaw F.F.S.
Sand Creek F.F.S.
Miramonte Camp
Park Ridge L.O.
PARK RIDGE
Tranquillity F.S.
San Joaquin F.S.
Easton F.S.
Fowler F.S.
Reedley F.S.
Badger F.F.S.
Caruthers F.S.
Selma F.S.
Kings River F.S.
Dinuba F.S.
Orosi Cutler F.S.
Ash Pk. L.O.
ASH MTN. HDQ.
Riverdale F.S.
Burris Park F.S.
Sequoia F.S.
Woodlake F.F.S.
Hammond L.O.
Milk Ranch
CAHOON ROCK
Three Rivers F.S.
Lemon Cove F.S.
Hells Corner F.S.
Ranger Unit Hdqts.
Armona F.S.
Kit Carson F.S.
Goshen F.S.
Ivanhoe F.S.
Ranger Unit Hdqts.
HANFORD
VISALIA
Farmersville F.S.
Exeter F.S.
Blue Ridge L.O. & M-Relay
MILO
Joaquin Rock L.O. & M-Relay
OILFIELDS
Lemoore Naval Air Station
Huron F.S.
Guernsey F.S.
Lindsay
BEAVER DAM
MARKLEEVILLE
BRIDGEPORT
E. WALKER RES.
TWIN LAKES
BODIE
PINE CREEK
Mono Lake
LEE VINING
Grant Lake
June Lake
BALD MTN.
MAMMOTH
Long Valley Res.
TOMS PLACE
ROUND VALLEY
Lake Florence
Huntington Lake
Shaver Lake
Big Creek
Kings
Tehipite Valley
Dunlap
Cedar Grove
Giant Forest
Lodgepole
Wilsonia
Grant Grove
Cedar Grove
Pine Ridge
Kaweah
Three Rivers
Milo
Porterville
Tulare
Lindsay
Strathmore
Farmersville
Exeter
Visalia
Hanford
Lemoore
Corcoran
Kettleman City
Avenal
Coalinga
Huron
Guernsey
Oilfields
Taft
Maricopa
Bakersfield
Delano
Wasco
Shafter
Arvin
Lamont
Edison
Famoso
Buttonwillow
Tupman
Elk Hills
Rio Bravo
Greenfield
Bakersfield
Kern River
Kern River Valley
Lake Isabella
Kernville
Onyx
Walker Pass
Weldon
Isabella


YOSEMITE
NATIONAL
PARK
SIERRA
NATIONAL
FOREST
INYO
NATIONAL
FOREST
SEQUOIA
NATIONAL
FOREST
SEQUOIA
N.F.
INYO
N.F.
KINGS
CANYON
NATIONAL
PARK
FRESNO
HANFORD
VISALIA
TULARE
KINGS
MADERA
INYO
MONO
TULARE
FRESNO
KERN
Grant Lake
June Lake
Owens River
Long Valley Res.
Merced River
San Joaquin River
Fresno River
Kings River
Kern River
Tule River
Kaweah River
St. Johns River
Owens River
Tinnemaha Res.
Haiwee Res.
Los Angeles Aqueduct
Saline Valley
Lake Florence
Huntington Lake
Shaver Lake
Pine Flat Dam
Millerton Lake
Kern County Land Co. Res.
Tule River Indian Res.
Isabella Dam
Tulare Lake
Kettleman City
Corcoran
Lemoore Naval Air Station
Crane Flat
Yosemite
Briceburg
Jerseydale
Mariposa
Usona
Miami
Ahwahnee
Oakhurst
Bass Lake
Shuteye Pk.
Deadwood
Coarsegold
Coarsegold Camp
Raymond
Rancheria
Castle Peak
Red Top
Big Sandy
Mountain Rest
Hurley
Millerton
Blasingame
Fence Meadow
Trimmer
Copper Peak
Clovis
North Fresno
Dist. Hqts.
West Fresno
East Fresno
South Fresno
Sanger
Ranger Unit Hqtrs.
Piedra
Bear Mtn.
Squaw Valley
Sand Creek
Miramonte Camp
Delilah
Cedar Grove
Wilsonia
Eshom Pk.
Little Baldy
Badger
Giant Forest
Ash Pk.
Ash Mtn. HDQ.
Hammond
Milk Ranch
Three Rivers
Lemon Cove
Woodlake
Ivanhoe
Goshen
Sequoia
Dinuba
Orosi
Cutler
Reedley
Easton
Fowler
Caruthers
Selma
Kings River
Riverdale
Burris Park
Halls Corner
Armona
Kit Carson
Exeter
Farmersville
Milo
Blue Ridge
Dillon Mill
Mountain Home State Forest
Mountain Home Camp
Jordan Peak
Camp Nelson
Quaking Aspen Camp
Cahoon Rock
Tunnel
Olancha
Keeler
Lone Pine
Independence
Big Pine
Bishop
Round Valley
Oasis
Benton
Mammoth
Bald Mtn.
Toms Place
Lindsay
Strathmore
Porterville
Tipton
Woodville
Poplar
Pixley
Terra Bella
Ducor
Earlimart
Alpaugh
Von Glahn
Richgrove
Delano
Famoso
Fountain Springs
Johnsondale
Uhl
Pine Flat
Tobias Peak
Balance Rock
Mule Peak
Tyler Cr.
Sunday Peak
North Kern
Fulton
Glennville
Woody
Kernville
Isabella
Kernvale
Democrat Springs
Walker Pass
Inyokern
Freeman
Rigardo
Koehn Lake
Bakersfield
Ranger Unit Hqtrs.
Stratford
Guernsey
Lemoore Naval Air Station
Hanford
Visalia
Tulare
Porterville
Delano
Bakersfield
Kernville
Independence
Lone Pine
Big Pine
Bishop
Benton
Mammoth
Oasis
Olancha
Keeler
Inyokern
Walker Pass
Freeman
Rigardo
Koehn Lake
Isabella
Kernvale
Democrat Springs
Johnsondale
Uhl
Pine Flat
Fountain Springs
Woody
Fulton
Glennville
Sunday Peak
North Kern
Tobias Peak
Balance Rock
Mule Peak
Tyler Cr.
Jordan Peak
Camp Nelson
Quaking Aspen Camp
Mountain Home State Forest
Mountain Home Camp
Dillon Mill
Blue Ridge
Milo
Exeter
Farmersville
Three Rivers
Lemon Cove
Woodlake
Ivanhoe
Goshen
Sequoia
Dinuba
Orosi
Cutler
Reedley
Easton
Fowler
Caruthers
Selma
Kings River
Riverdale
Burris Park
Halls Corner
Armona
Kit Carson


Pt. I – Ch. 7
Page 38
Map No. 8
545
525
497
BEAVER DAM
OILFIELDS
Joaquin Rock L.O. & M-Relay
Lemoore Naval Air Station
HANFORD
Riverdale F.S.
Burris Park F.S.
Ranger Unit Hdqtrs.
Kit Carson F.S.
Armona F.S.
Kings River
Goshen F.S.
Sequoia F.S.
Ivanhoe F.S.
VISALIA
Farmersville F.S.
Exeter F.S.
MILO
Lindsay F.S.
Strathmore
Springville R.S.
Porterville F.F.S.
Woodville F.S.
Tulare F.S.
Guernsey F.S.
Stratford F.S.
Huron F.S.
Pleasant Valley F.S.
Coalinga F.S. Camp
Mustang F.F.S.
SAN LUCAS
Slack Canyon Camp
SMITH MTN.
495
565
K I N G S
Murray F.S.
Avenal F.S.
Kettleman City F.S.
Tulare Lake
Corcoran F.S.
Tule River
Poplar F.S.
TIPTON
Tipton F.S.
Pixley F.S.
Terra Bella F.S.
Earlimart F.S.
Alpaugh F.S.
Von Glahn F.S.
A.T. & S.F. R.R.
Canal
DUCOR
FOUNTAIN SPRINGS
410
438
Tyler Cr. F.F.S.
TULE RIVER INDIAN RES.
CALAMORA
BRADLEY
CAMP ROBERTS MIL. RES.
ROCKY BUTTE
LAS TABLAS
575
PASO ROBLES
SHANDON
COTTONWOOD PASS
Annette F.S.&L.O.
CHOLAME
DEVILS DEN
Kern County Land Co. Res.
DELANO
Richgrove F.S.
North Kern L.O.
FULTON
WOODY
FAMOSO
DEMOCRAT SPRINGS
415
445
ATASCADERO
CRESTON
Cayucos F.F.S.
S A N L U I S O B I S P O
Cerro Alto L.O. & G.S.
Santa Margarita F.F.S.
Black Mtn. L.O.
La Panza F.F.S.
Mt. Lowe Radio Repeator
POZO
HI MTN. Lopez G.S.
582
SIMMLER
498
Ranger Unit Hdqtrs.
SAN LUIS OBISPO
Avenales G.S.
BRANCH MTN.
590
510
Pt. San Luis
PISMO BEACH
LOS
308
NIPOMO
PINE CANYON
MARICOPA
WHEELER RIDGE
Naval Petroleum Reserve
MC KITTRICK
Fellows
Buena Vista Lake
Taft F.S.
Arvin F.S.
BAKERSFIELD
K E
Santa Maria USAF Field
Santa Maria F.S.
PADRES
585
Cuyama F.S.
GRAPEVINE
448
Pt. Sal
Sisquoc F.S.
McPHERSON
VENTUCOPA
NATIONAL
LOS PADRES N.F.
L'EBEC
485
588
690
Camp Cook Military Reservation
S A N T A B A R B A R A
CHUCHUPATE
651
512
FIGUEROA
FOREST
LOS PADRES
GOLD HILL
SURF
Lompoc F.S.
Buellton
SANTA YNEZ
586
THORN POINT
NATIONAL
HONDA
LOMPOC
Cachuma Dam F.S.
LOS PRIETOS
650
652
Pt. Arguello
SAN MARCOS
LA CUMBRE MOUNTAIN DRIVE
NORDHOFF
V E N T U R A
TEMESCAL
LAS CRUCES
Pt. Conception
514
Goleta F.S.
Hoff F.S.
SANTA BARBARA
CASITAS
Ojai F.S.
Ranger Unit Hdqtrs.
Fillmore F.S.
Piru F.S.
Ventura Ave F.S.
SOUTH MTN.
Moorepark F.S.
VENTURA
SANTA PAULA
EL RIO
Camarillo F.S.
Susana Knoll F.S.
Thousand Oaks F.S.
622
AGOURA
600
623
CASTRO
LECHUZA
ZUMA
605
San Miguel Isle.
REV. 5/15/69


Guernsey F.S.
Tulare F.S.
Lindsay F.S.
Strathmore
Porterville F.F.S.
Woodville F.S.
Corcoran F.S.
Tipton F.S.
Pixley F.S.
Terra Bella F.S.
Earlimart F.S.
Alpaugh F.S.
Von Glahn F.S.
Richgrove F.S.
Delano
Famoso
Bakersfield
Ranger Unit Hdqtrs.
Naval Petroleum
Mc Kittrick
Fellows
Taft F.S.
Buena Vista Lake
Arvin F.S.
Lorraine F.S.
Keene
Tehachapi
F.S. 34
Wheeler Ridge
Maricopa
Grapevine
Cuyama F.S.
Ventucopa
Lebec
Los Padres N.F.
Chuchupate
Gold Hill
Thorn Point
Los Prietos
La Cumbre
Mountain Drive
Nordhoff
Ojai F.S.
Piru F.S.
Fillmore F.S.
Temescal
Santa Barbara
Casitas
Ventura Ave F.S.
Ventura
Santa Paula
South Mtn.
Moorepark F.S.
El Rio
Camarillo F.S.
Susana Knolls F.S.
Thousand Oaks F.S.
Agoura
Lechuza
Castro
Topanga
Montenido
Zuma
Point L.O.
Oat Mtn. L.O.
Chatsworth
Goldwater Canyon
Los Angeles
Ranger Unit Hdqtrs.
Warm Springs
Sierra Pelona
Palmdale
Lancaster
Fairmont
Vincent
Parker Mtn. L.O.
Little Tujunga
Clear Creek
Vetter Mtn.
Big Pines
Valyermo
Phelan F.F.S.
Summit
Eaton Canyon
Tanbark
Dimas Per. Sta. U.S.F.S.
Day Canyon L.O.
San Antonio F.F.S.
Duarte
Pacific Ocean
Santa Cruz Island
Mountain Home Camp
Jordan Peak L.O.
Camp Nelson
Quaking Aspen Camp
Haiwee Res.
Tule River Indian R.S.
Mule Peak L.O.
Bald Mtn.
Johnsondale
Tyrone F.F.S.
Uhl
Tobias Peak L.O.
Balance Rock F.S.
Fountain Springs
North Kern L.O.
Fuller
Glennville F.S.
Sunday Peak L.O.
Woody
Isabella Dam
Kernville
Isabella
Kernvale F.S.
Democrat Springs
Sequoia N.F.
Los Padres N.F.
Angeles N.F.
Angeles National Forest
Ventura National Forest
Los Padres National Forest
Brown
China Lake
Walker Pass
Inyokern
Freeman
Ricardo
Johannesburg
Koehn Lake
Mojave
Boron
Muroc Lake
Muroc Army Airfield Military Reservation
Rosamond Lake
Mirage Lake
Aqueduct
Los Angeles
Kern
Canal
West Side
New Rim
Tule
Poplar
Kern River
South Fork
Los Angeles River
A.T. & S.F. R.R.
440
443
480
410
438
415
445
485
448
590
498
588
651
586
652
650
690
694
514
620
622
600
655
660
623
624
642
605
606
625
640
REV. 5/15/69


Rosamond Lake
Mirage Lake
Troy Lake
Lavic Lake
Lucerne Lake
Deadman Lake
Mesquite Lake
Big Bear Lake
Arrowhead Lake
Elsinore L.
Lake Cahuilla
Clark Lake
Borrego Sink
Morena Lake
Barrett Lake
Lake Hodges
Lower Otay Res.
Miramar Res.
El Capitan Res.
Cuyamaca Res.
Lake Henshaw
Lake Wohlford
Lake Dixon
Lake Morena
Lake Jennings
Lake Poway
Lake Murray
Lake Sutherland
Lake Cuyamaca
Lake Barrett
Lake Hodges

Part II
AGENCY INSTRUCTIONS

Part III
AGENCY SUBDIVISION INSTRUCTIONS

Part IV

U. S. WEATHER BUREAU
FIRE WEATHER FORECAST SERVICES

7/14/69

done 8/15/69 mcf

CORRECTIONS FOR WILDLAND FIRE DANGER RATING HANDBOOK

PART I, CHAPTER 1.

Page 9 - Average Afternoon Wind Speed

Change Column 9 to read "Column 8."

Page 13 - Wet & Dry Bulb Temperatures

2nd paragraph, last sentence: Change Columns 5 & 6 to read "Columns 4 & 5."

Page 18 - To Determine Condition of Vegetation

1st sentence: Change Columns 11 & 12 to read "Columns 10 & 11."

3rd paragraph, 2nd sentence: Change Column 11 to read "Column 10."

8th paragraph, 5th and last sentences: Change Column 12 to read "Column 11."

PART I, CHAPTER 2

Page 1 - Foreward

5th paragraph: Change Column numbers to read 14, 15, 16, 17, and 18.

Page 2 - Grass Burning Index

Tables and description - change column numbers on this page as follows:

Table 1: Change Col. 8 to Col. 7 and change Col. 7 to Col. 6.

Table 2: Change Col. 9 to Col. 8.

Table 3: Change Col. 11 to Col. 10, and change Col. 15 to Col. 14.

1st paragraph: Revise first sentence to read, "Refer to the computing tables in Chapter 6 and follow the steps indicated in the above diagram."

Last paragraph, last line: Change Col. 15 to Col. 14.

Page 3 - Brush Burning Index:

Change column numbers in tables and description as follows:

Table 1: Change Col. 8 to Col. 7 and change Col. 7 to Col. 6.

Table 2: Change Col. 9 to Col. 8.

Table 3B: Change Col. 8 to Col. 7 and change Col. 12 to Col. 11.

Table 4: Change Col. 16 to Col. 15.

1st paragraph: Revise first sentence to read, "Refer to the computing tables in Chapter 6 and follow the steps indicated in the above diagram."

Last paragraph, last line: Change Col. 16 to Col. 15.

Page 4 - Timber Burning Index

Change column numbers in tables and descriptions as follows:

Table 1: Change Col. 8 to Col. 7, and Col. 7 to Col. 6.

Table 2: Change Col. 9 to Col. 8.

Table 3-T: Change Col. 8 to Col. 7, and Col. 13 to Col. 12.

Table 4: Change Col. 17 to Col. 16.

1st paragraph: Revise first sentence to read, "Refer to the computing tables in Chapter 6 and follow the steps indicated in the above diagram."

Last paragraph, last line: Change Col. 17 to Col. 16.

Page 5 - Ignition Index

Table 5: Change Col. 5 to Col. 4, and change Col. 18 to Col. 17.

1st sentence: Revise to read, "Enter the Ignition Index table (Chapter 6) represented by the square above..."

Also change Col. 5 to read Col. 4.

3rd sentence: Change Col. 18 to read Col. 17.

Page 6 - Fire Load Index

Table 6: Change Col. 19 to Col. 18.

1st sentence: Revise to read, "Enter the Fire Load Index table (Chapter 6) represented by the square above..."

3rd sentence: Change Col. 19 to Col. 18.

PART I, CHAPTER 4

Page 3 - SUMMARY OF STANDARDS FOR FIRE WEATHER STATIONS

Fan Psychrometer

2nd sentence: Change to read, "...cut off to extend about 1-inch beyond tip of thermometer."

Litter Bed and Fuel Moisture Stick

Last sentence: Add, "..., except that during the winter months, yearlong stations may leave green grass in the fuel bed (clipped at the top of the fuel bed frame so as not to be more than 2" in height) in keeping with other green vegetation in the surrounding area."

Anemometer

At end of paragraph: Add, "(See Page 21 for anemometer height correction factor.)"

Page 5 - DETAILS OF EXPOSURE STANDARDS

Full sun exposure should be the same throughout the book to avoid confusion. Suggest we stick with May 1st through October 31. (Fore 1st paragraph.)

Page 15 - Anemometer

2nd paragraph, last sentence: Add to end of sentence,

"..., page 19."

PART I, CHAPTER 5

Page 46 - Fuel Moisture Indicator Scale

PARTS LIST

Item 10 should be named and listed as follows:

"Scale Beam Shaft Spacers (2) (not visible in illustration)."

As Item 11, add to Parts List:

"Beam Support Bracket Spacer (1) (not visible in illustration.)"

Page 47 - Litter Bed for Fuel Moisture Indicator Stick

As last sentence, add: "During the winter months yearlong stations may leave green grass in the fuel bed (clipped at the top of the fuel bed frame so as not to be more than 2" in height) in keeping with other green vegetation in the surrounding area."

PART I, CHAPTER 7

Page 28 - Form PSW, 4400-193

2nd paragraph, 2nd sentence: Change Col. 19 to Col. 18.

Pacific Southwest Forest and Range
Experiment Station

WILDLAND FIRE DANGER RATING SYSTEM

Property of
National FS Library
USDA Forest Service
240 W Prospect Rd
Fort Collins CO 80526